

AMERICAN BEE JOURNAL



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Number 6

JUNE

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- Our Cover Picture -



Harold Clay

The May Mystery Guest

Harold was born in Minneapolis in 1892 but moved to New England at an early age. He took beekeeping work under Dr. Burton Gates at Mass. Agricultural College (now

the University of Mass.). Then, at the suggestion of Dr. Phillips, he began the market news reports on honey for U.S.D.A. and during the next 25 years he built up the reports to make them as widely useful as possible. With the aid of state leaders he gathered and published estimates of colony counts and honey production, later taken over by the Bureau of Agricultural Economics. Much of his time was also devoted to problems of honey marketing making his work a clearing house for questions from beekeepers, dealers, manufacturers using honey, or government men and women who wanted to know about the industry. This work was especially varied during the war years. He has been one of the best boosters for honey and pollination needs in the country. He has an extremely wide circle of friends in beekeeping and has endeared himself to hundreds of producers in all lines of beekeeping. Information about Clay will also be found in the announcement of his retirement which appeared in ABJ in April (page 147).

Mystery Guest For This Month

This bright looking gentleman is so well known to beekeepers everywhere that it is perhaps a mistake to dub him "a mystery guest." He is another individual who has done so much for us that it would be difficult to choose his most outstanding service. Do you need a clue? No—of course not. Just send your guess, with a short account of his life and activities, to Cover Contest, American Bee Journal, Hamilton, Illinois. For the best answer, \$5.00 and a three year subscription; second, two years of ABJ; third, one year. Next four, six months. Answers will be published in July as far as room allows.

WINNERS FOR THE APRIL COVER CONTEST

No. 1—Charlotte B. Waldron, Malvern, Pa.

This is a most welcome "Mystery Guest." The fine photograph of Professor Edwin J. Anderson brings responsive smiles of pride and affection from many a Pennsylvanian. Is there a Keystone State beekeeper who does not know, or know of "Andy"? As Extension Apiarist for many years he covered the field with unstinted devotion, helping beekeepers from 4-H'ers to veteran bee-gummers, making countless friends, and learning all the best fishing locations.

As head of the Department of Beekeeping in the College of Agriculture of Pennsylvania State University, he is locally, nationally, and internationally known. He is the original author of the excellent bulletin

"Beekeeping in Pennsylvania." His remarkable summer short course at which not only numerous states, but several foreign countries are usually represented, combines lectures, discussion, laboratory, field work, and fun. Andy has organized it to cover honey production from brood chamber to the honey in jars and combs, queen-rearing, artificial insemination, beeswax candle-making, coloring beeswax, and special equipment. He has also perfected many delicious honey candy recipes. He is a noted queen breeder for disease resistance as well as for honey production. His "stay-below" queens actually do confine themselves to brood chambers instead of laying all through the supers.

If a county beekeepers' association

wants a speaker who will draw a crowd, it calls on Andy. If a new or knotty problem confronts a beekeeper, he writes Andy, and help is forthcoming. If another state puts on a short course, it is no surprise to learn Andy is a featured attraction. If a commercial or sideline beekeeper wants a honey house designed, with a maximum streamlined efficiency, he knows that Andy can do it.

Andy is a designer of bee equipment—including over-wintering "nukes"—a master gadgeteer, a story teller of renown, a pianist, a sure-fire master of ceremonies, as modest as he is beloved in his church and community activities. And to cap it all, in his hospitable home, honey is always on the table.

No. 2—Aylmer J. Jones, Maiden, Mass.

The mystery guest for April is Edwin Joseph Anderson, Professor of Apiculture at Pennsylvania State University, College of Agriculture. He was born in 1900, was Apiary Inspector for the Penn. State Dept. of Agriculture from 1920 to 1924; obtained his BS degree in 1924 at Pennsylvania State (then) College; his master's degree in 1925 at Cornell; joined the faculty of Clemson College for 1925 and 1926; and then returned to Penn State late in 1926, first as extensionist in apiculture, then with various grades of rank as collegiate instructor of apiculture, until he now holds a full professorship. There is no branch of beekeeping with which Professor Anderson is not familiar, but he has done notable work in research on equipment for extracting, heating, and bottling honey—the uses and properties of honey—on disease and apiary management—and on queen rearing. A mechanic and inventor of no mean ability, he originated a flash heater for honey that is a model of its kind. He has been Editor of the Pennsylvania Beekeeper since 1927, author of "Diseases and Enemies of the Honeybee" as well as countless articles in the bee journals and entomological publications. "Ed's" articles are usually well illustrated. He is much sought after as a speaker, and in this respect is most accommodating, traveling great distances for little remuneration to help beekeepers everywhere.

Congratulations also to No. 3, Douglas R. Patterson, Quebec; No. 4, C. F. Duart, Pierce City, Mo.

CONTENTS

Our Cover Picture — Editor, Pat Diehnelt.....	221
The Commercial Beekeeper	224
Can We Survive the Gypsy Moth Spray?	
—William Sumnick	224
A Honey Drum Elevator — Charles M. Leshner	225
Rents for Outyards — Milton H. Stricker.....	226
The Story of Purple Loosetrife as I Know It	
—Fred Russell	227
The Picture Page	229
The Sideline Beekeeper	230
Feeding Bees — W. H. Purser.....	230
A Plan for Demareeing — Roland R. Ford....	232
Catching Swarms — Joseph Jachman.....	232
A New Way to Raise Comb Honey — Dr.	

Richard Taylor	233
The Beginner and His Bees — W. W. Clarke, Jr.	234
Science and Industry	236
The Prevention of Severe Reactions Following	
Stings of the Honey Bee—	
Frank W. Schofield	236
Are These Our Future Beekeepers?—W. A.	
Stephen	237
Undercurrent	241
How To Do It	242
All Around the Bee Yard — G. H. Cale.....	245
Meetings, Here and There	250
The Scramble — A Contest — Pat Diehnelt....	253
Crop and Market — M. G. Dadant.....	260

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ADVERTISING INDEX

Aeppler Co., C. W.	254, 260	Flowers Bee Co.	252	Richard, Homer	247
African Beekeeper	256	Forehand & Sons, W. J.	259	Rives, J. C.	256
Alamance Bee Co.	257	Garon Bee Co.	256	Root Co., A. I. Inside Back Cover, 258	
American Bee Journal	258	Gaspard, J. H.	243	Rossman Apiaries	223
American Rabbit Journal	258	Harper, Carlus T.	258	Scottish Beekeeper	247
Anderson, O. K.	257	Hazel-Atlas	240	Shackelford, John S.	247
Arnouville, Johnnie	258	Homan, Holder	256	Sioux Honey Association	246
Arnouville, Oscar	247	Honey Sales Co.	256	Smith, N. B. & Co.	257
Bee World	256	Hutchison Mfg. Co.	252	Stewart, Frank G.	247
Berry, M. C. & Son	248	Jackson Apiaries	258	Stoller Honey Farms	243
Bessonnet Bee Co.	249	Jensen's Apiaries	252	Stover Apiaries	259
Billy Bee Honey Co.	247	Johnson Co., Carl E.	259	Strachan, Don J.	252
Blue Bonnet Apiaries	258	Kelley Co., Walter T.	222, 248	Sunkist Bee Co.	257
Bordelon, E. J.	258	Koehnen & Sons, C. F.	257	Sunrise Apiaries	259
Bowen, Chas.	253	Leahy Mfg. Co.	257	Taylor Apiaries	259
British Bee Journal	252	Little's Apiaries	247, 252	Taylor, E. R.	247
Burleson & Son, T. W.	247	Lotz Co., August	222	Taylor, Stewart	249
Calvert Apiaries	256	Marshfield Mfg. Co.	223	Walker, Eugene	243
Canadian Bee Journal	252	McCord Mfg. Co.	258	Weaver Apiaries	258
Chrysler & Son, W. A.	259	McFarling, Raymond	256	Weaver, Howard	259
Cloverline Apiaries	244	Mitchell's Apiaries	247, 255	Wenner, C. G.	252
Cobana Products	243	Moore, Sam	252	West, M. C.	258
Conneaut Can Co.	257	Nassau Bee Co.	259	White Pine Bee Farms	252
Couch, Louis L.	256	Neiman Bros.	258	Wicht Apiaries	259
Cutts & Sons, J. M.	257	Norman, John A.	243	Wilbanks Apiaries	249
Dadant & Sons	Back Cover, Inside	Overbey Apiaries	256, 259	William Bros. Mfg. Co.	257
Front Cover, 255, 259		Petorama	257	Wing & Sons, J. E.	256
Dixie Honey Co.	258	Piedmont Apiaries	247	Winslett, D. T.	243
Ducote, Alvin	256	Plant, W. E.	257	Woodland Apiaries	256
Eabe Laboratory Sup.	256	Reams, W. D.	247	Woodman Co., A. G.	248
Faske, A. W.	258			York Bee Co.	Inside front cover

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The Commercial Beekeeper

This is what a tornado did in the Ott yard of Ohmert Bee Farms, in Dubuque County, Iowa. The remarkable result is that many of the colonies were not torn apart and scattered but they were blown backwards as a unit and left intact. Wind, flood, or fire often cause losses for commercial men.

Can We Survive The Gypsy Moth Spray?

by William E. Sumnick

In the spring of 1957 the U. S. Department of Agriculture began a program to completely eradicate the gypsy moth from the northeastern states. This calls for a complete saturation of DDT on every bush or tree in this area over a period of many years. At the rate applied in April-May of 1957 up to 10 years will be needed to eradicate the moth in the entire area. The program started in northeastern Pennsylvania in 1957 and completely covered an area of about 100 miles to the north and east. In 1958 it is planned to cover another area starting where the 1957 program ended and going north and east also. In this way the gypsy moth should be eventually wiped out right to the Atlantic Ocean and the Canadian border. This, at least, is the theory of the U. S. Dept. of Agriculture and the state departments of agriculture that are cooperating.

I operate 400 colonies in 2 counties of New York that were completely saturated with the 1957 spray. I am writing this primarily because the reader may be in an area to be saturated in the future and can profit by my experience.

About half of my hives have been rented to fruit growers each spring since lead arsenate was the only poison used on fruit. I have seen each new type of poison introduced and used as the years have gone by, so DDT is not a stranger to me. DDT is one of the nicer poisons as far as the honey bee is concerned. If it is

in the vicinity, a field bee will touch it while foraging and die in about a minute's time. In tests, bees were dead in as short a period as 40 seconds. Now I call this a nice poison because the poison never gets back to the hive. Therefore, no matter how thorough the dose of DDT on foliage, a beehive can never be wiped out by one spray as the nurse bees and brood survive. However, as far as the beekeeper is concerned, this could be fatal, as a spray which killed the field force in April or May would eliminate a June honey crop and most of us in the Northeast make our crop in June.

In its spray program the Government contracted with spraying companies. In this area two types of planes were used, heavy multiple engine planes, mostly B-26 and B-17 World War II bombers and a light single engine bi-plane. The heavy planes droned back and forth over intensely forested areas and covered 100% of the area with spray and killed 100% of the field force of hives beneath them. The little bi-planes worked over the farming area and only sprayed trees and bushes. This left the open fields unsprayed. Here the kill of the field force varied from nothing to 50%.

When the program first started in this area I thought it would not be too harmful. I happened to be working in a yard one beautiful morning, in dairy farm area, when the little plane went over and sprayed me and the hives, and then went

spraying along the roadside and here and there wherever a bush or tree was growing. Bees were working mustard and dandelion in the hay and pasture fields and the plane left the fields untouched. However, some spray could be seen to drift and some abandoned apple trees were in bloom also, so I felt the bees would be hurt. However, I visited this yard daily for a week and could not see any change in field force so I then felt the spray was not too bad. As the spray program continued and other blossoms were worked by the bees results were not so good. In the same type area several weeks later when locust was in bloom and nothing in bloom in the open fields the spray killed at least half of the field force in another yard. This yard had always been used for comb honey but had to be switched to extracted after the spray.

In the heavily wooded areas where the big planes operated, the spray was ruinous. All the bees in this area lost their entire field force. It is a very distressful thing to walk into a yard in May and not hear a bee buzz. Strangely enough things are not too bad when hives are opened. Clusters are small but intact. In a week or ten days the colony will again have some flight but it has lost its power except for a fall honeyflow. Had I known bees in this type area would have suffered this much, they would have been moved out. Right here I should like to advise close contact between the spray people and

the beekeeper. Knowing where the planes are going to operate and when, a beekeeper could move his bees out of heavy forested areas into already sprayed open farm areas and escape most of the loss.

It should be understood that the planes do not cover a whole county at once. They may take several days to cover a township. They only work during the morning unless the day is entirely without wind or breeze. Such quiet times are usually restricted to the early morning hours and some days, such as rain or fog, they cannot work at all. This is the reason we were sprayed during dandelion, and locust a month later, in the same county.

There is also the happy prospect from the beekeeper's viewpoint that the spraying may be stopped in coming years. The small area covered in 1957 produced many disgruntled citizens. Besides bees and gypsy moths, fish, game and wildlife were killed. This produced an angry group

of sportsmen, naturalists, and scientists who are working to stop the spray program. Their ranks will grow with each additional area that gets sprayed until the tide may be turned.

Some may ask if the Government should not be responsible for the losses it creates. There are many suits in court now over this spray program. The beekeeper however has two strikes against him here. The one thing the Agriculture Dept. wants, in order to consider a loss, is the poisoned carcass for examination. With dead bees scattered all over the countryside and none in the hive, the beekeeper can do little here. Another thing that gets the Department's attention is united action. The beekeeper has from the beginning of time been weak on this point and while some progress is being made, a long road lies ahead before others will listen to our side of a problem.

Gardner, New York

Mexican Exports — Who it Right?

Claude R. Kellogg, Palmdale, California, who used to be apiarist in Mexico City, calls attention to the report in "Science and Industry" (page 102), "World Trade in Honey," where exports of honey from Mexico are given as 21,053,000 pounds. The total exports of the world were given as 111.6 million. In Gleanings, President Cortinez gave the total production of honey in Mexico for 1956 as 117,520,000 pounds. If 117,520,000 pounds were produced and 21,053,000 pounds exported, 96,467,000 pounds must have been used in one year within the country. However the Mexicans actually do not consume much honey. They use it largely for mixing with medicine. They do eat it when they can get it but they would not likely consume over 96 million pounds in one year. So—what is wrong with the trade report?

Honey Drum Elevator

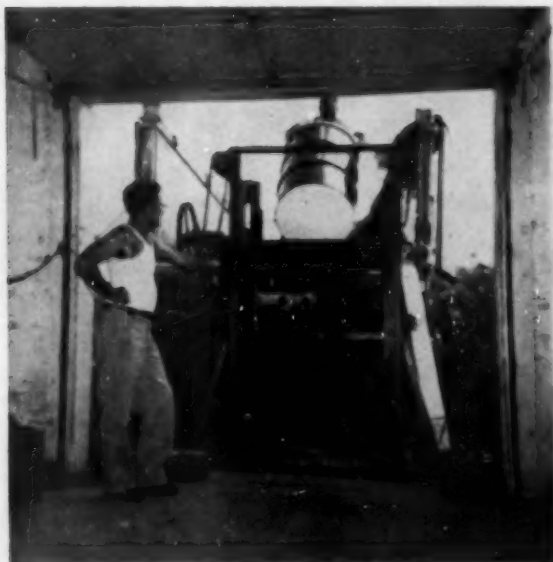
by Charles M. Lesher

A honey-drum elevator has been used for the past two seasons at the Manikowske Apiaries, Dwight, North Dakota, to handle several hundred tons of honey. This homemade elevator lifts drums from ground level to the bed of the truck. Barrel trucks wheel the honey off and on the elevator.

The elevator was designed and constructed by Thomas Manikowske and Alex Senchenko out of old parts and angle iron costing not over \$20. Gearing is provided by the steering sector of an old International 10-20 tractor. The frame is made from 2" x 2" x 3/16th" angle iron. A 3/4 H.P. motor supplies the power and

a reversing switch determines the up or down direction of the platform which is suspended on 3/16" flexible aircraft cable. The complete elevator may be loaded on a pick-up truck and moved.

North Dakota



E. L. Evans operating switch of elevator as barrel is unloaded into truck.



View of elevator showing barrel ready for unloading onto truck.

RENTS FOR OUTYARDS

by Milton H. Stricker

In the bee publications of the last few years I've read all manner of instructive articles on outyards, their management, their location, and all phases of their operation—everything in fact except the actual renting of them and how to keep that renting a mutual benefit to both beekeeper and landlord.

To get to the core of the matter, since we beekeepers aren't rich enough to own all the spots of land on which we must locate our apiaries, it boils down to the hard, cold fact that an outyard is no better than its landlord. On the other end of that statement is another cold fact that when we occupy this man's land, we must offer him something for his continued hospitality.

In locating the yard it is well to spend a little money on gasoline for scouting the area, not only for its nectar yielding potential, but for its accessibility, its southern exposure, its air drainage, the availability of water, and, of course, its freedom from diseased colonies in the vicinity.

When your ideal is found, it would then be advisable to find out something about your prospective landlord. Knowing something about his character will better enable you to sell him on your plan of "stationing" your bees on his land. In a strange area this may be impossible. In this case it would be advisable to set your

sights on a man or woman with some waste land that has been unused for some time, and approach cold. Explaining why you are in the vicinity and why you want to move bees in the area is a help. Another help is a sample jar or can of honey and asking if he or she likes the product and if not, will he or she try this container with your compliments. I usually ask to be allowed to try a few colonies away from the house or buildings for the first year with the assurance to the timid that I will move them at the first disturbance.

I offer six 5 pound jars of honey for the year's rent. This amount is now retailing at thirty-five cents a pound, or ten dollars and fifty cents for the case. To a non-honey user this seems like a fabulous amount, so I offer a recipe book and go on with a sales talk on the value of this product. By all means, build it up—don't sell your product short. But quantity is not the feature here. Diplomacy rents the yard and holds it for you year after year. Some "out apiarists" actually rent their yards in this State for a ten pound pail of honey and the landlords are well pleased.

In some cases a yard can be located on a "gentleman's farm" by stressing the good your bees will do his alfalfa, or clover, or maybe his two or three fruit trees. Anyone who

lives in the country, even though he may have just "immigrated" from the city, knows the word "pollination." With your help, he can be sold on the many advantages of your bees. Some of my landlords are more interested in having the bees on their farms for this free pollination than they are in receiving the honey, but most think the honey well worth having.

Some will insist they can't eat the whole thirty pounds. Here is an opening for you to explain what a dandy present it would be for his friends at Christmas time. If you pack honey in a gift pack for your own Christmas trade, offer the prospective landlord honey in these containers for his friends. Almost everyone is interested in bargains for Christmas presents.

Speaking of Christmas, I make a habit of distributing my bee yard rents during the week before Christmas. It seems like more of a gift to the receiver if he receives it along with a cheery "Merry Christmas."

Keeping to a regular schedule and giving out these rents at the same time each year is very important. If the landlord knows he can depend on your delivery, he knows he can depend on you, and selling yourself and your character is of prime importance in establishing a bee yard.

Another thing that can't be stressed too much is the type of pack containing this bee yard rent. It should



A nice location in the edge of woods. This land would not bring in any income so a small rental is enough and welcome.



This location also is on otherwise unprofitable land. A small rental is enough especially when the landlord understands the pollination value of the bees.

be the very best; your cleanest, your best, with uniform size containers and they should be sparkling clean and well labelled. Not only will this little item make your landlord feel the full value of your product, but in turn it promotes the sale of your product in this area. For too long, some beekeepers think, since this is "give-away" trade, it can be delivered in a rubber boot, a wrong attitude in these times when the housewife is exposed to the best honey packs in her local super market.

To sum it all up, keeping your landlord happy is described by consideration for him and his property, and your bees will have a happy home for years.

New Jersey

Now It's The Fire Ant

The Wall Street Journal writes that a counterattack against the fire ant is to get in motion in February by isolating the territory by quarantine of stuff which might carry them.

Apparently the ant came in from Latin America in 1918. The spread was slow at first but by now they are found in all the ten southern states, and presumably did an estimated damage of 500 million dollars on 20 million acres in the South, in 1957.

The fire ants range in size from $\frac{1}{8}$ to $\frac{1}{4}$ inch and in color from reddish-brown to blackish-red and feed on such crops as potatoes, okra, cabbage, corn kernels, juices from tree

rootlets, and gnaw through fruit and other buds.

E. S. Miles Gets the Credit

Mrs. Lucy Miles Conrad, Woodbine, Iowa, takes us back to the Journal for August 1957 where, in the picture heading for the "Commercial" department on page 299, it says that there is no record of the picture. It shows three men on a platform supporting a commercial apiary in a swamp area. The man in the center is E. S. Miles who was then visiting John J. Miller, queen breeder, at Corpus Christi. Miller raised queens for Miles from breeders selected by Miles. So apparently the mystery is solved. Our regrets Mr. Miles.

The Story of Purple Loosestrife As I Know It

by Fred Russell

Purple loosestrife has been in this area (Mass.) for some fifty years. It apparently came as seed in imported wool, along with some other seeds, from Australia. It was below the wool scouring mills that it began to grow along the banks of brooks and streams. After the wool was washed the water containing the seed was emptied into the streams.

It grows right to the edge of the water and its reflection will show in the water like a colored picture. I put plants and seed in other brooks and wet places and so got it started elsewhere. The seed is very light with perhaps a million seeds to the pound.

It stayed mostly in a fifteen mile

course along the waterways, but after the floods in 1936 and the hurricane of 1938, it seemed to spread more and more. Now it may be found a good fifty miles to the ocean at Newburyport and up and down the coast in the marshes. It does not spread into cultivated lands but stays in the wet waste lands.

It blossoms over a period of eight to ten weeks. The honey is very good. But the color is off amber, sometimes with a greenish tinge. The pollen is dark green. It is a member of the herb family. I have seen it in the Hudson Valley but not in the same acreage as around here. Here it will grow for four or five miles along a stream and in some places it may be

found extending a fourth to a half mile wide in meadows. There were 400 colonies around one meadow for three years, with 25, 80 or 100 colonies in one place.

We had a very dry year in 1957 but loosestrife still was worked hard by the bees. There was a 14 inch deficiency in rain until November but that did not affect the loosestrife. It was a life saver through this dry year. Most of the 400 colonies mentioned were bees that had been on apple, blueberry, and cranberry for pollination. Some produced a good surplus. One beekeeper had a fine crop from loosestrife and goldenrod.

Massachusetts



Purple loosestrife spreads along water courses very quickly and then out to the adjacent ground.

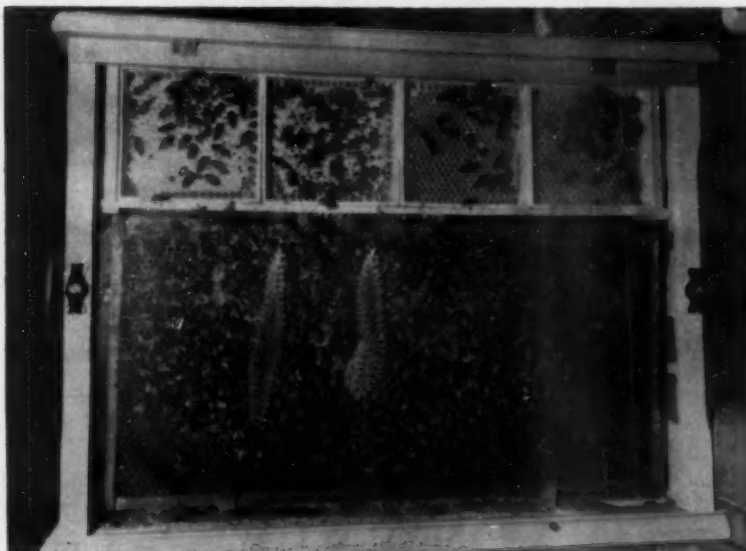


Here the loosestrife has spread over a wide area making some measure of commercial beekeeping possible when none existed before.



Starlines in Argentina

Five hundred Starline queens, produced by Mr. Hernandez in Argentina, are here being sent from Buenos Aires to Misiones. These queens are widely used in Argentina.



Kansas State College Observation Hive

The sealed brood of a one-comb observation colony of honey bees can be seen exposed behind glass in the above picture. The observation hive, located in the Fairchild hall museum on the Kansas State College campus, was arranged by Ralph Parker of the entomology department and Dell Gates, extension entomologist, to create interest in bee culture. An outside entrance has been arranged through a 2x4 studding below the window sash (at right) so that bees may come and go as they wish.

The four section boxes of honey at the top were put in by Parker to carry the colony through until the nectar flow began about June 1. Since it takes one cell of honey to produce a worker bee, this gives some idea of how many capped cells there are in the lower comb (there are 25-26 cells per square inch). At the time this picture was taken Parker estimated there were about a half pound of bees in the colony (there are approximately 3,500 bees to the pound). He guessed there would be 2-3 pounds of

bees by June 1.

The verticle combs which can be seen in the lower frame are "brace combs" built by bees between the glass and their regular comb. Bees fill in with comb in spaces that are too wide for a "bee space" (that is, more than the space a bee needs—or $\frac{1}{8}$ to $\frac{1}{2}$ inch). Parker said that should the queen bee lay eggs in these cells, that it would be possible to observe development of the brood against the glass. (Carl Rochat, KSC News)

Hillary To South Pole

The energy of Sir Edmund Hillary who previously mounted to the summit of Mt. Everest, seems unabated. On January 3 he and his party, based in New Zealand, completed their trip to the South Pole.

Later, Hillary joined the expedition of Dr. Vivian Fuchs with his British Expedition. This party also succeeded in reaching the American Advance base at the South Pole. These two expeditions were the first since Amundsen and Scott, 45 years ago, to reach the pole by overland journey.

Where To Get Pollen

A request from a pharmaceutical source that we furnish them with names and addresses of sources for pollen, led us to a realization that such sources were extremely few and far between. In fact the demand for pollen has not been such to encourage such accumulation.

But we are wondering if perhaps we are not just about to enter a new era in some of the "minor products" of the hive. Royal jelly likely needs only some careful work to give us not only its recognition, but also its uses and its limitations. As it is now, all we can answer is that the jelly has been greeted with great enthusiasm by many who have had beneficial results therefrom, without being able to report from scientific work done in this country, its actual place in the human health picture. We hope that, before too long, such work may be available from sources on this continent.

In Europe, pollen is already considered as having a place in human ailment. May we not also hope that pollen may have its day, and that beekeepers will consider it as one of the resourceful products of the colony and apiary. In the meantime, surely there is someone who is prepared to furnish pollen, both for experimentation and for such uses as may be found for it pharmaceutically.



REVEREND ROBERTSON—Reverend Bill, Owatonna, Minn., in 1955, harvested 200 pounds of honey from each of 100 colonies, with a beekeeping friend as partner. This makes him a real commercial sideliners. Bill came from Scotland, by way of Canada. (From St. Paul Pioneer Press through Mrs. John Saunders, St. Paul from a story by Fred Leighton).



POLITICAL HONEY—Lester Hall, Livingston, Montana, sends this picture from the Park County News, of an assortment of Montana honey that was given to Senators Mansfield and Murray and Congressman Metcalf and Anderson for presentation to President Eisenhower. Each of the men also received a can of Montana honey.



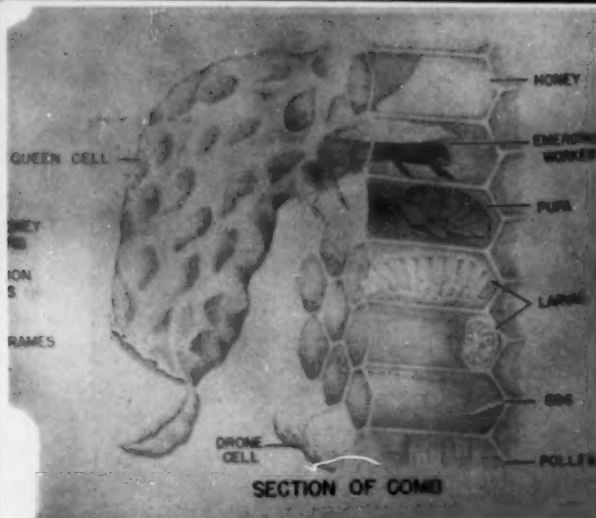
FIREWEED—The color of this honey plant is gorgeous. The honey from it is delicious. In the north country fireweed grows luxuriantly for a time in burned over areas; then is replaced by other growth.



MARILEE IS BUSY—Marilee Ammer, pretty California Honey Queen, in this picture from Mona Schafer, California Honey Advisory Board, is dramatizing Honey for Breakfast Week. She sent leaflets publicizing the Week over the State. Honey for grapefruit was featured strongly.



ROYAL JELLY EXTRACTOR—This picture from Porter V. Taylor, South Miami, Florida, shows a demonstration of an extractor used for removing royal jelly from queen cells. The extractor is from Life Products, North Miami. At right George E. Curtis is operating the machine. Mrs. Curtis is in center.



The Sideline Beekeeper

If you cut this out and paste it on suitable cardboard you will have a very good chart of the life of the honey bee. Note the three sizes of cells, queen, drone and worker; the honey in the top cell; pollen in the bottom one; life stages from egg to emergence of the adult. Everything seems to be accounted for.

Feeding Bees

by W. H. Purser

Assistant Entomologist
South Carolina State Crop Pest Commission
Clemson, South Carolina

The practice of feeding bees is one of the special management problems. Many beekeepers give very little thought to this problem and lose numerous colonies of bees as a result. The primary reason for feeding is to prevent starvation. However, there are other important reasons why feeding bees is beneficial. It is a poor practice to feed only a few ounces like some beekeepers do.

When to Feed

Any time the stores run below fifteen pounds the bees should be fed. The best way to determine the amount of stores and condition of the colony is to remove the frames and look for honey, pollen, and brood. If the colony is low on stores and high on brood, this is a sure sign of need. This very often happens in the heavy brood rearing periods just prior to the main honeyflow. In South Carolina late March and early April are the critical periods. Many times brood rearing will be heavy, the stores light, and a freeze will kill the blooms in the field. When this occurs, the strongest colonies are often lost.

When a swarm is captured or an increase made and the frames are filled with foundation, the bees should be fed until all the foundation is drawn out and activated. This is especially true if no honeyflow is on.

Stimulative feeding is a good practice when getting the bees ready for an early honeyflow or if an increase is to be made from the best colonies. This feed should be given six weeks in advance of making the increase.



Feeding to build up stores in the fall may be practical in some cases. Heavy feeding is certainly recommended in this case, as light feeding will stimulate brood rearing, then when the food is cut off the bees run short of stores quickly.

In the summer between honeyflows or during extended droughts the colony often runs low on stores and brood. This may result in starvation, robbing and a reduced number of bees for a future honeyflow. Feeding at this time is very important.

How to Feed

For the past few years the feeding of granulated sugar has been a common practice. This can be fed in several different ways. One of the

more common ways of feeding granulated sugar is pouring about two pounds on the inner cover, Fig. I, and removing the lid that covers the bee escape. If no inner covers are used, the sugar can be poured right on the bottom board. In this case, four or five pounds can be given at one feeding. If the bees need feed, they need at least ten or fifteen pounds. A good colony will take up ten pounds of syrup in a week or ten days.

For effective feeding in cold weather, the feed must be in close contact with the cluster. Bees do not freeze, they starve even with honey in the hive. The bees may be unable to reach the honey even in the frame where the cluster is located in continued cold weather.

The best way to feed syrup is to use a ten-pound friction top bucket with a few holes in the lid. The bucket can be filled according to the size of the colony. If the colony is strong, the bucket can be filled with syrup made by mixing sugar and water in equal parts. If the colony is small, fill the bucket accordingly, as syrup ferments in a few days if the weather is warm. Fig. II. Student Beekeeper Feeding his Colony in Class.

If only one bucket of syrup is to be used, fill the bucket $\frac{3}{4}$ full of sugar and finish filling with warm water. Then stir until the sugar is dissolved. Place the lid on tight. Turn the bucket upside down and place right over the brood nest. For weak colonies, the hive should be



FIG. II

Syrup feeding (top left) over open hole in inner cover. Students, left to right, Ysmon Dejama, Indonesia; Paul Snyder, Baltimore, Md.; Ervin Rowell, Trio, S.C.; Allen Inglesby, Greenville, S.C.; and W. H. Purser, demonstrating.



FIG. I

Demonstrating a method of feeding dry sugar (top right).



FIG. III

Bottom, feeding by inserting combs of honey from disease-free sources.

covered with an inner cover and the bucket of syrup set over a small opening made immediately over the cluster.

There is no better feed for the bees than good frames of honey, Fig. III. Sometimes honey of inferior quality can be kept for feeding bees. Also, frames of honey may be taken from heavy colonies and given to light colonies. When feeding this way, the honey should be placed as near the cluster as possible. A good super of honey set over the brood nest is just about perfect.

Honey can be mixed with an equal part of water and fed in the friction top bucket. Every precaution must be taken to keep bees from fighting while feeding honey in this manner. Feed in the same manner as feeding sugar syrup. Outside feeders made like pig troughs can be used. If this method is used, it is necessary for the weather to be a pleasant 60° or higher. Weak colonies will profit less than strong colonies. However,

this is much less trouble to the beekeeper.

There are two other types of feeders in use. These are the Boardman feeder and the division board feeder. The Boardman feeder is made of wood and inserted in the entrance of the hive. A jar of syrup is turned upside down in this feeder. The lid of the jar should have small holes so the bees can gather the syrup.

The division board feeder is a container that fits in the hive and usually occupies about the same space as a standard frame. The bees enter the feeder from the upper side and gather the syrup. These feeders are used more by the commercial operators and are very satisfactory.

If a colony of bees need feeding, they should have not less than ten pounds of sugar. Giving a yard of bees a few ounces of honey in a bucket lid set out in the yard is comparable to giving a hundred hogs one grain of corn. Feed well or do not feed.

Feeding Pollen Supplement

Feeding pollen supplement or substitute is practiced very little by the beekeepers who produce honey. The package and queen producers make use of pollen supplement to some extent. They use pollen cakes and dry mixes. A good mixture to use is one part pollen to three parts soy bean flour made into a thick dough with sugar syrup (two parts sugar to one part water). These cakes can be made in any size, but smaller colonies of course, will require or consume less than the stronger colonies. These cakes should be placed on the frames directly over the brood nest.

Feeding Pollen Substitute

A mixture of four parts soy flour to one part Brewers Yeast fed in an open container works very well. A zinc tub is a very suitable container except in rainy weather.

(Just turn the page)

Conserving Stores

Removing the surplus equipment will save the colony stores. The adult bees eat honey to keep warm. The smaller the space for the winter

stores, the better. If a colony has sufficient stores in one brood chamber, they will winter better and come through stronger than when they have the run of two hives.

A PLAN FOR DEMAREEING

by Roland R. Ford

I use this plan whether or not colonies have swarm cells. It was first used when I was hospitalized for a hernia operation. I had no choice but to omit any additional cell cutting. The bees were supered at the time to avoid lifting later. Believe it or not, I checked the colonies for the first time on July 4th and they were full of honey. *So all those trips in past years "just to check on the bees" were not really necessary.* Perhaps the bees did not have time to start more cells and swarm since the honeyflow is early here. Tulip poplar blooms May 10th in southern Maryland.

Another of my variations in the Demaree plan, when there are no queen cells, is to place the hive body containing the sealed brood directly over the hive body containing the queen and unsealed brood and one or two combs of honey. A queen excluder keeps the queen below.

The reason I have made the room for the bees more compact than in a strict Demaree method is to prevent one of my past misfortunes from recurring. I usually Demaree at apple-blossom time (April 10-15 in Maryland). In several years the weather turned to winter again for a few weeks and the bees and the queen in the lower hive body died out. Yet the larger cluster of bees in the third body were in excellent condition. The body of combs between was a barrier that separated the two clusters.

My supering is done from the top without shifting supers. This is far easier on the back. If the bees have enough super room to keep the honey-storing instinct working *continuously without interruption* the bees do a good job. We have blackberry, tulip poplar, and clover in succession so top supering works fine.

The Demaree method used by Julius Lysne (July, 1956) for colonies with swarm cells has me interested. By his plan, the queen with one comb of sealed brood is placed in a hive below the excluder, the supers are placed above the excluder and an inner cover on the supers. The escape hole in the inner cover is covered with a wire cloth. Then the body of brood and queen cells is set at the top. An entrance is given the top unit at the back. A ripe queen cell of your best stock may then be given in this top unit and in due time a new queen will be found up there. When she has several combs of her own brood this top body may be put below the excluder. There is no need to remove the old queen as the young one will usually survive to head the colony.

By this method I would avoid fall requeening. My bees then fight and rob and it is difficult to requeen them. Many advise fall requeening but it just doesn't work for me.

Incidentally, after July 4th, when the spring flow is over, I put the cork back in the top entrance and use an entrance reducer on the lower entrance. This prevents moths and robbers from gaining a ready entrance. When the bottom entrance is really covered with bees, I leave the closure off until fall. The hives have moving screens for inner covers to provide adequate ventilation the year-round.

Incidentally I have been a beekeeper since I was nine years old and I am now 37. My two out-yards consist of 10 colonies each. I have not expanded because I want my bees to be a joy and not a chore. Maryland

Catching Swarms

by Joseph Jachman

Every beekeeper, at one time or other, is called upon to remove a swarm. Quite often, some frantic householder calls and begs the beekeeper to remove the menace to his or his children's safety.

Every beekeeper, of course has his own method of hiving a swarm, I have my own also. This method, which I have used for the last five years, is so simple and satisfactory I am surprised that it has never been mentioned in the magazines or at beekeepers' meetings.

First of all, let me say that no swarm of bees is worth breaking your leg or neck for. So, any swarm above 8 feet high is left alone unless easily accessible.

I use a funnel and cages, similar to shipping cages. The funnel is about 25 inches high, 12 inches in diameter at the top and about 3 inches in diameter at the bottom. The top is not round but flattened to an oval shape, which has proved to be most practical. The bottom of the funnel has a strong flange, which fits into slides on top of each cage. Funnel and cage are thereby made one unit and can be handled with one hand or in the crook of one arm. Each cage has a gate also which closes the 3 inch hole while the funnel is still attached.

At times I find it necessary to trim the branch or bush on which the swarm has settled and I carry shears with me for that purpose. Once the swarm is lined up over the funnel, it takes only a little tapping with the hive tool to make the bees fall into the cage. If one cage does not hold them all, I use two. I am always careful not to shake them into the funnel too fast in order to avoid clogging the base.

After the bees are in the cages, I hold one of them up in the place where the cluster was, and all flying bees will, in a few minutes, cluster on the cage. I have at times brushed the bees into the funnel. Also I have swept them in, and scraped them in.

The system works so well that I have disappointed many spectators by the speed with which I caught the bees and left. They were all set for a lengthy and interesting show.

Illinois



Randy Taylor with some of the circular sections of comb honey which Dr. Taylor is producing.

A New Way To Raise Comb Honey

by Dr. Richard Taylor

Comb honey is almost unknown in Rhode Island. About half the people ask what it is, how one gets the honey out of the comb, whether it has to be melted, and so on. Others vaguely remember having it as children. The reason is that Rhode Island does not have conditions for comb honey production: almost no clover, no dependable major flow and lots of evergreens for collecting propolis. There is a great variety of flowers, so the bees usually have something to work on, but they are so diverse that honey from adjacent colonies often tastes differently.

Despite these discouragements I decided two summers ago to devote six colonies to comb honey, using the new round, plastic Cobana sections. There would be no problem of propolis, because no part of the section that could be propolized is exposed. As for the light flows, this problem would be solved by the absence of corners to be left unfinished. So I reduced the colonies to one story and supered up. On my next visit I was amazed to find one super filled and the rest well underway. I fixed up eight more supers and from then on was deluged with comb honey, in a season that was not especially good for honey production generally.

On a later trip to another apiary I found two strong colonies needing supers, but having nothing with me except two spare Cobana supers, I put these on, on top of the stack, in violation of the principles of comb honey production. On a later visit, I found both filled to the last cell—so

perfect, that there was not a single defective section that I could use for sampling.

This suggested the following experiment which I tried on one of the hives in my back yard. I had a super of square sections about half drawn out and with a little uncapped honey, left from the previous summer—in short, a super of bait sections, I put this on the hive, and above it, a super of round Cobana sections containing only foundation. It was late summer by now, and neither super was entirely finished, but while only six of the square sections were completed and the rest hardly touched, twenty-nine Cobana sections were finished almost perfectly, despite the fact that they were less accessible to the bees and without any baits at all. (A Cobana super holds thirty-six sections).

I had a serious problem that first summer with drone brood, for I had not used queen excluders. Moral: either use excluders, or else put Cobana supers over other supers.

Last summer, which was the driest and worst in Rhode Island history, one colony alone finished sixty-one sections, worth \$20.33 wholesale.

It was hard selling comb honey at first, because of the unfamiliarity with it; even some grocers did not know what it was. But I induced a few to display it, and from then on could not supply the demand. The sections with almost no exception weigh exactly nine ounces, are exceedingly attractive, and wholesale here at four dollars a dozen. There

is no scraping or grading; one just fits a transparent cover to the best side, an opaque one to the other side, and wraps a label around. There is no stickiness, and the pack, with no weak or partially finished corners, is very durable. I have mailed them with only superficial wrapping, and a friend mailed six from Rhode Island to California with damage to only one.

The reason for the high production obtainable with round sections is mainly their circularity. Bees do not naturally make things square. It takes bees more time to fill the corners of square sections than to fill the centers; even in extracting frames, it is not uncommon to find unfinished corners, even though the bees may have had years to finish them.

It is my belief that this invention represents the most important step in beekeeping in many decades. To its ingenious inventor, Dr. Zbikowski, a retired physician and hobby beekeeper of only a few years, is due the gratitude and esteem of beekeepers all over the world.

Rhode Island

Featured Honey Breakfast Week

The Louisiana Weekly Bulletin issued by the Commissioner of Agriculture, and with a circulation of several thousand, featured on its April 10 front page "Honey for Breakfast Week," with some data on importance of honey and bees to Louisiana.

The Beginner and His Bees

by W. W. Clarke, Jr.

If you have a beginner question send it to "Beginner," American Bee Journal, Hamilton, Illinois. The more experienced readers who ask for information have a full page for questions and answers, as you know, and it is published once every three months ("Your Questions Answered," see May, page 201). Just keep prodding Bill Clarke for beginner information. He likes to be kept busy.



From Billy Priest
Corpus Christi, Texas

► I would like some information on how to get a start with bees. I am eleven years old and this is my first try with bees.

Answer: It would be hard to tell you very much about getting a start with bees in one letter. I am glad you are getting started at the early age of eleven. We need more good young beekeepers to replace us older men.

The following are a few things you should do to get started:

Get acquainted with a *good* beekeeper who can give you a hand if you get in trouble, or better still get your dad interested so he can give you a hand with the heavy work.

Start with one or, at the most, two colonies, since you will have many problems. You can increase the number of colonies as you gain experience. There is some advantage to having two colonies since you can often use one to help the other.

I would suggest you start with new equipment and full sheets of foundation that are well wired. This new equipment will cost a little extra, but it is well worth the expense since the bees are easier to manipulate and it makes for easier beekeeping.

Start with a three pound package of bees with a queen (we use Italians). You can learn a lot as the colony develops in strength.

Feed the package bees well. It takes about twenty pounds of sugar to feed them enough to get well established.

Don't stop feeding just because there are a few flowers in bloom. Feed until all the foundation is drawn into comb and there are several frames of brood.

Have enough equipment. You should have on hand a hive body and shallow super for a food chamber; this is for the bees to live on. You should have three supers for each hive so surplus honey may be stored.

I would suggest you produce extracted honey the first year or two and as you gain experience branch out into comb production. It is easier, cheaper, takes less experience and you should get more honey by producing extracted honey.

Equip yourself with a good bee veil, smoker, and hive tool. Some people like to wear gloves; these I would have your mother make, using good leather gloves that fit, with long canvas or muslin sleeves sewed on and with elastic at the tops. Tie your pant legs to keep the bees out, if a bee gets up your pant legs it is not a case of whether it is going to sting, but where and when. Have a good sized smoker and learn to light it so that it stays lit. There are many kinds of fuel: burlap, rotten wood, excelsior and many others; find the one you like best. Use smoke properly and often, but don't overdo the job.

These are a few hints on getting started, so get your bees, set them in a good location facing east if possible and keep them close to the ground. I suspect they should have a little shade in your area, but don't overdo this shade, bees are easier to handle

if they have sufficient sunlight.

From J. M. Houle,
Forest Lake, Minnesota

► A year ago, and for no apparent reason, I decided it would be interesting to have a colony of bees. I bought a beginner's outfit and 3 lbs. of bees and was in business (so I thought). After three weeks the queen died and I did not notice it until nearly all the brood had emerged and the bees were making queen cells. I destroyed the cells and sent for another queen. She arrived dead. When I eventually got a live queen installed the honeyflow was waning but I put a super of sections on the single hive body figuring they would at least fill one or two. But no luck. The bees seldom went into the super and when they did they chewed holes in the foundation. Last fall I killed the bees and I am going to use the drawn combs, honey and pollen to start off two hives this year.

I plan to put two combs of honey in each hive body, plus three drawn combs, and five frames of foundation. Is that the proper procedure? I decided to try for extracted honey instead of comb this year so I bought some 6% inch supers. Is it necessary to wire the foundation horizontally? If so how is it done? In reading the bee books I find conflicting statements about an auger hole for an upper entrance. Some show the hole in the handhold; some have it at one side; some have none. Which position is generally used? Is it necessary to have an upper entrance in the spring and in the summer and fall?

Answer: Since you have the comb and honey on hand and plan to start two colonies from package bees, I think it would be well to use five frames of the comb in each new colony along with five sheets of foundation. It is probably best to place the two frames of honey on the outside edge and the three combs in the middle. This will give the queen space to lay eggs and not be hampered by honey. If you have more than two frames of honey for each colony, I would uncap the honey so that the bees will make better use of it. I don't think that the two frames of honey are sufficient food even if there are some flowers in bloom. Some feeding of sugar syrup is needed until all of the frames of foundation are drawn into comb. It should take ten to fifteen pounds of sugar to do the job.

I think you are wise to change to extracted honey production. When you have learned a little more about bees and their habits, you may want to try to produce some comb honey. It is very difficult for anyone to produce all comb honey, since it should only be produced during a heavy flow.

You will continue to have the problem of the bees chewing out the foundations unless there is a honeyflow or you feed the bees.

I would certainly wire the frames horizontally even though you are using wired foundation, as it will make the new combs stronger and you should have less sagging and fewer broken combs when you extract. I'm not sure there is a right way, but be sure that the wires are pulled tight so that they sing like a fiddle. Many beekeepers use eyelets in the holes to prevent the wire from cutting into the frames. A wiring board which can be made or purchased from the bee supply house makes the job easier, but for a small number of frames it is almost as easy to do it without the board. Run the wires through the holes; tack the loose end and pull the wire tight with the spool, wrap the wire around a small nail, which should be in the end bar and tack it tight. Cut the surplus wire.

We in Pennsylvania like an upper entrance to help take care of ventilation and excess moisture during the winter. It also acts as an extra flight hole in early spring. We close this hole in the spring. The easiest type of hole to make is a $\frac{1}{4}$ " auger hole off to one side of the handhold in the food chamber. We like it to one side rather than in the handhold since it probably results in fewer stings and the wood

is thicker here to hold the plug when we want to close this entrance.

I might add here that it is not only on the upper entrance we so-called experts don't agree, but on almost all beekeeping methods. Of this we are sure; it takes strong colonies, headed by young vigorous queens, with plenty of space, to be successful at beekeeping.

From John Pilcher,
Nettleton, Arkansas

► I have four colonies and one has moths in it. How is the best way to get rid of them? Also I want to unite two of these colonies. What is the best way and when is the best time? Some hives have a lot of burr comb and when frames are removed honey drips all over. How can I clean up such hives and what will keep them from burring?

Answer: Ordinarily wax moth is not a problem in a strong colony of bees, but since you have had the problem then the best way to clean it up is to kill the moth with carbon disulfide. Carbon disulfide is a liquid which can be purchased from your bee supply dealer or the drug store. Use about $\frac{1}{2}$ oz. for each super. The carbon disulfide is placed in a shallow dish or pan on top of the stack of supers and the stack covered. In a very short time the moth will be killed. Clean up the equipment. Carbon disulfide is dangerous and should be used out-of-doors away from flames or sparks. Paradichlorobenzene (PDB) or sulphur fumes may also be used. Treat your combs when they are being stored to prevent this problem. When carbon disulfide is used, repeat the treatment in ten days. Keep an eye on any stored equipment. PDB may be present on the equipment at all times during warm weather. Cold weather slows down or eliminates the moth.

To unite two colonies of bees place one over the other with a sheet of newspaper in between. You may punch two or three small holes in the paper with a small nail. The bees will chew their way through the paper and be united in a day or two. We usually place the best colony on top since it is this queen which seems to survive in the majority of cases. This may be done at any time, but the sooner the better if it's strong colonies you want. The combined

force of the two colonies will do a better job of rearing brood.

The problem of burr comb is a tough one. The only real solution seems to be to have proper spacing between supers and frames. If the space is much over $\frac{3}{4}$ ", bees are likely to fill it with honey and comb; much less space than this results in propolizing or gluing. Lack of space for storing honey will also cause this trouble. Some strains and races of bees will use more burr and brace combs than others. Requeening may be a help. The only way to clean up such a hive is to scrape or cut it away at regular intervals to prevent an accumulation.

From Walter Hohn,
Arpin, Wisconsin

► I am a beginner and there are many things I would like to know. Can I feed corn sugar in place of cane or beet sugar? Also I want to make a nucleus box and I intend to make it using a ten frame hive body. Should I divide it in two or three parts? Can I start my nuclei from package bees? How many should I maintain for forty colonies?

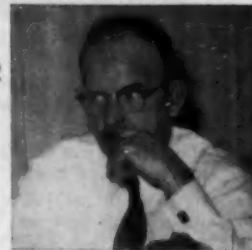
Answer: In answer to your questions: Corn syrup is apparently not a desirable substitute for cane or beet sugar. It is pure glucose, is only half as sweet as cane or beet sugar, and is more expensive. It is probably not as readily used by the bees. We find no need for a substitute for cane or beet sugar other than the use of honey. As a matter of fact, cane sugar is not readily available in our area.

In making nucs from a standard ten frame hive, divide it into three sections of three frames each, place three entrances one in front and one on each side. Be sure the partitions are solid so that bees cannot cross from one side to another or you will lose queens. You can start or stock your nucs from package bees, but you will probably have better results if you use frames of brood from established colonies. Keep the bees in a cool place and close in for a short time after introducing. If you have 40 colonies, you should have no trouble getting the brood you will need for the four to six nucs needed as a reservoir for queens. It is advisable to keep about 10% on hand. At the end of the season any remaining nucs may be united or combined to form a colony of bees that should live over winter.



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The Prevention of Severe Reactions Following Stings of the Honeybee

Frank W. Schofield, D.V.Sc.*

For many years it has been known that the sting of a bee may cause a severe reaction, which is not limited to the site of the sting alone but may affect almost immediately the whole body, and terminate fatally within a few minutes. Until comparatively recent it was believed that the severe symptoms and sudden death were due to the venom being injected directly into a small blood vessel. It is known that both the suddenness and the severity of the reaction are due to an unusual degree of sensitivity to bee protein, not venom, in the person stung. This brings us to the first point which we wish to emphasize, that the reaction following a sting, whether mild or severe, is due to bee protein, a nitrogenous substance present in all living tissue. Bee venom contains a small amount of bee protein. Venom from which all the protein has been removed causes only a slight local reaction at the place of injection. This is apparent from the many instances recorded of people suffering from asthma and other reactions by simply handling equipment or inhaling air containing dust from beehives.

Allergy or Hypersensitivity

Most of us have become familiar with the words "allergy" and "allergic." They imply a reaction which is unusually severe to an agent or substance, which is usually harmless. A good example of an allergic reaction is the condition called "Hay Fever." Here, the pollen of certain plants when inhaled may cause an inflammation of the nose and eyes

with a watery discharge or an "allergic reaction." In the majority of people the same pollen has no harmful effect. Allergy, or hypersensitivity, means an exaggerated response.

So it is with the sting of the bee. The majority of people experience only local pain with slight swelling. In a few individuals, however, the reaction is not only much more severe, but is general as well as local, and may even terminate fatally. Such people are allergic or hypersensitive to bee protein. There are, of course, varying degrees of hypersensitivity. In most cases the allergy has developed over a period of time. The reactions to the first few stings received were not unusual, but as time passed the reactions became increasingly severe.

The Symptoms of Bee Sting Allergy

The symptoms generally appear a few minutes after the sting, but may be delayed as long as twenty-four hours. The local swelling tends to be excessive. Urticaria, or a condition like hives, may break out over the body. There is a sensation of choking, difficult breathing, asthma, and the lips turn blue. Shock-like symptoms, vomiting, and loss of consciousness may follow in rapid sequence.

Preventive Treatment (Desensitization)

The most important thing is obviously prevention. Medicinal treatment, following the sting, even when almost immediately, may be too late to save the life of the patient.

Many years ago, when carrying on experiments in the first case of bee sting-allergy which we had observed, we were surprised to discover that the patient was equally sensitive to extracts made from either the body

of the bee or the body plus the venom. In other words, the venom had little or nothing to do with the allergic state. An extract made from the head of the bee was equally as effective as a test agent as one prepared from the tail!

The preventive treatment employed with so much success in allergic conditions is technically known as "desensitization." It consists in giving a carefully graduated series of injections of an extract made from the very same agent which causes "sets off," the acute allergic reaction. The cause of the disease becomes the cure of the disease. Following the technique employed in the preparation of extracts for the treatment of other allergies, we made extracts from the bodies of honeybees. A series of injections of this bee body extract were given with excellent results. Prior to these treatments the patient would suffer from a severe attack of asthma, accompanied by malaise, following the sting of two or three bees. After the treatments even large numbers of stings—fifty in one day—had little or no effect. Since then other cases have been successfully treated.¹

Some Questions Which Are Frequently Asked About The Treatment

Is the treatment successful in all cases? If by "success" is meant a complete freedom from the severe and dangerous allergic reaction, then the answer is an emphatic "NO." Considering our own results and the experiences of many others, I think that it can be stated without question, that almost all people are benefited from the treatments, but some very much more than others. Certainly in the great majority of cases, if not

(Turn to page 239)

*Professor of Pathology (Retired), Ontario Veterinary College, Guelph, Ontario.

ARE THESE OUR FUTURE BEEKEEPERS?

by W. A. Stephen

A healthy agricultural economy is linked with beekeeping. In certain areas it is true that beekeeping is "The sparkplug of agriculture." Undoubtedly economics of supply and demand for bees for pollination will operate in such areas to keep alive the beekeeping industry. But, what about other areas where honey production, a more completely rewarding pursuit in terms of personal satisfaction, is the chief aim? Demand here is more elastic and must be fostered. We often use the term "create a demand." Well, there is need for action all up the line—from the beekeeper's home community to the national level—advertising in its broadest sense. Lack of action has given all of us cause to regret that our product is not in sufficient demand to stimulate greater production, or, indeed, to maintain our current units of production. The land that flowed with milk and honey had bees for pollination of the clovers, and honey production was spoken of in equal terms with the production of milk. Somehow, somewhere, "Bees for Honey" has lost out. What is to be done about it?

Encourage 4-H Beekeeping Projects

Have you heard the statement, "I don't know what's going to happen to our beekeeping industry when we old timers die out"? It is always a statement colored by nostalgic memories, tinged with regret, and portraying a certain amount of concern, not always personal. The present article reports on a phase of beekeeping that may be the answer to the old timers' query. It deals with beekeepers at a time when memories are being born—in the formative period—the school age years—the 4-H'ers' decade.

Table I gives the eleven-year numerical picture of 4-H Club members enrolled in beekeeping projects 1946-1956. It tells its own story. For purposes of comparison, however, the eight states with over 100 4-H'ers carrying projects for more than half of the period are considered in Table II. Seventy per cent of the total number of 4-H'ers are in these eight states. Table II is arranged to show fluctuations from year to year based on the preceding year's record. The final column shows the per cent of

projects in 1956 based on the number in 1946. From this it can be seen that only Florida, North Carolina, and Tennessee have made significant increases in 4-H beekeeping projects. Why North Carolina has made over 1200% increase cannot be explained on the basis of information obtainable.

Factors influencing progress in

North Carolina are (1) the large rural population—a larger farm population than any other state; (2) the amount of extension help available—a larger force of agricultural and home economics agents than any other state except Texas; (3) the number of agricultural agents who keep bees—at least 30 counties with agents who keep a few colonies; (4) the interest

TABLE I

Number of 4-H Club Members Enrolled in Beekeeping Project - 1946 through 1956.												
State	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	
Maine	1	1	1	0	0	1	0	1	1	1	1	
N. H.	15	19	13	10	14	18	12	22	18	13	21	
Vt.	5	7	2	4	5	6	8	6	3	5	7	
Mass.	13	7	9	17	17	13	14	16	17	5	5	
R. I.	24	7	4	9	8	9	0	2	12	8	0	
Conn.	10	13	5	7	7	15	21	13	7	80	13	
N. Y.	18	22	33	43	45	38	47	77	88	98	96	
N. J.	10	7	14	22	36	18	17	16	8	11	15	
Penn.	148	159	158	155	157	122	154	163	157	179	152	
N. Atlantic	244	242	239	267	289	240	273	316	311	400	310	
Ohio	129	98	105	108	105	114	114	116	140	117	118	
Ind.	62	64	81	85	73	117	118	161	249	140	96	
Ill.	92	86	98	104	89	93	94	79	91	74	59	
Mich.	39	24	18	16	14	21	43	42	116	45	33	
Wis.	157	152	146	160	191	192	202	189	184	236	164	
East N. Cent.	479	424	448	473	472	537	571	587	780	612	470	
Minn.	0	0	0	0	16	16	20	13	0	0	12	
Iowa	55	31	37	40	37	34	60	41	73	91	95	
Mo.	41	27	15	39	44	66	68	88	90	88	71	
N. Dak.	11	12	6	3	2	4	6	2	5	5	2	
S. Dak.	2	0	0	0	0	0	0	0	0	0	0	
Nebr.	4	4	3	4	13	13	9	19	26	12	9	
Kans.	87	101	106	103	116	77	53	46	57	33	34	
W. N. Cent.	200	175	167	189	228	210	216	209	251	229	223	
Del.	3	2	2	2	2	3	7	5	6	5	3	
Md.	30	29	19	14	25	14	19	10	43	51	7	
Va.	33	52	38	33	25	22	86	16	18	6	13	
W. Va.	59	47	40	53	58	62	56	7	6	17	11	
N. C.	458	402	281	242	210	175	169	125	108	64	38	
S. C.	84	91	116	75	42	31	33	22	32	31	34	
Ga.	134	147	190	125	175	227	230	315	588	496	570	
Fla.	272	262	274	231	216	221	156	157	108	173	170	
S. Atlantic	1073	1032	970	775	753	755	756	657	909	843	846	
Ky.	44	110	87	89	88	104	20	10	73	21	21	
Tenn.	230	222	128	187	178	232	159	128	207	188	158	
Ala.	132	148	124	92	75	69	63	46	61	46	58	
Miss.	6	22	9	9	9	14	21	15	124	45	36	
Ark.	15	11	16	21	22	45	12	34	28	30	32	
La.	33	6	18	24	24	30	36	49	69	42	22	
Okla.	1391	1340	1426	1670	1742	2012	2655	1793	1884	1832	1199	
Tex.	79	76	132	99	64	63	102	80	88	59	46	
S. Cent.	1930	1935	1940	2191	2202	2569	3068	2155	2534	2263	1572	
Mont.	5	0	3	15	20	12	17	21	11	5	2	
Idaho	1	1	1	0	0	0	0	2	1	3	1	
Wyo.	6	9	7	11	6	11	11	10	8	5	4	
Colo.	53	51	49	59	56	65	69	72	64	59	38	
N. Mex.	4	5	4	3	4	10	4	4	8	6	5	
Ariz.	7	11	6	8	24	10	10	4	3	2	5	
Utah	2	5	4	3	10	9	5	0	4	4	1	
Nev.	1	2	3	3	1	1	2	1	2	1	2	
Wash.	16	27	15	27	20	26	55	34	30	23	8	
Oreg.	19	22	10	27	31	37	34	35	21	41	5	
Calif.	123	111	75	70	49	51	80	41	34	55	35	
Western	237	244	177	226	221	232	287	224	186	204	106	
Grand Total	4163	4052	3941	4121	4165	4543	5171	4148	4971	4551	3527	

TABLE II

4-H Club members enrolled in beekeeping projects in the 8 states having more than 100 enrolled for over half the 10-year period, 1947-1956. Annual fluctuation in per cent, based on preceding year.

State	Per cent									
	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Ohio	3	-1	20	-21	-2	-8	3	-3	-7	31
Fla.	2	-60	45	0	41	-2	7	19	-5	4
Ga.	-13	18	-46	-27	-1	-22	-14	52	-23	-9
Wisc.	44	-23	3	7	-5	0	-16	-9	4	3
N. C.	68	69	16	35	4	20	15	16	43	14
Tenn.	19	10	-38	24	46	-23	5	-32	73	4
Penn.	18	-12	4	-5	-21	29	-1	2	0	-7
Okla.	53	3	-5	48	-24	-13	-4	-15	-6	4

shown by the vocational agricultural teachers; and (5) the support of the North Carolina State Beekeepers Association and the interest of individual beekeepers. To this might also be added the facts that North Carolina has the longest record of extension beekeeping work in the United States and that there are honey bee colonies on one farm out of every

10, over 90% of the bees being kept by those who call themselves amateurs.

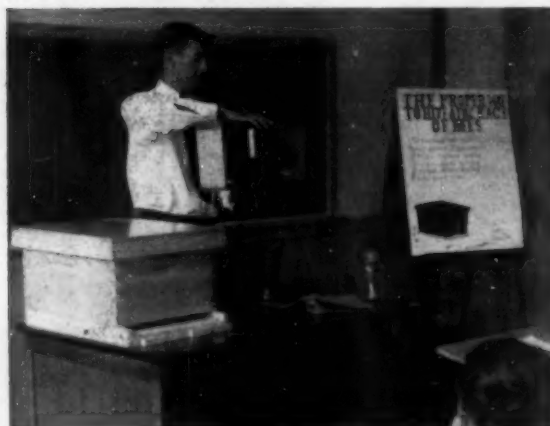
There is obviously no correlation between state income from beekeeping enterprise and 4-H Club work; neither is there any agreement between the fluctuations in numbers of colonies within each state and the number of colonies used in the pro-

jects. Oklahoma, for instance, with less than 1 per cent of the national total of honey bee colonies, has over 3 per cent of its colonies listed for 4-H Club projects, whereas California, with over 10 per cent of all the bees in the United States, records fewer than 2 colonies in each thousand.

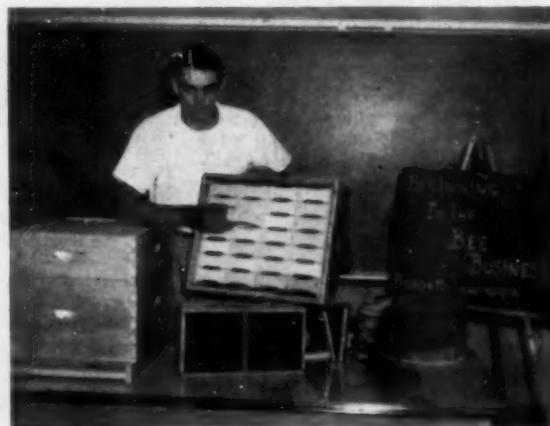
The preceding has dealt with the projects carried on by 4-H boys and girls who are officially signed through their county agents to keep colony records. These records include honey-flow data, dates of colony manipulations, and expense and receipts accounts. Bee projects may contribute towards the entomology long term record for National awards.

Promote 4-H Beekeeping Demonstrations

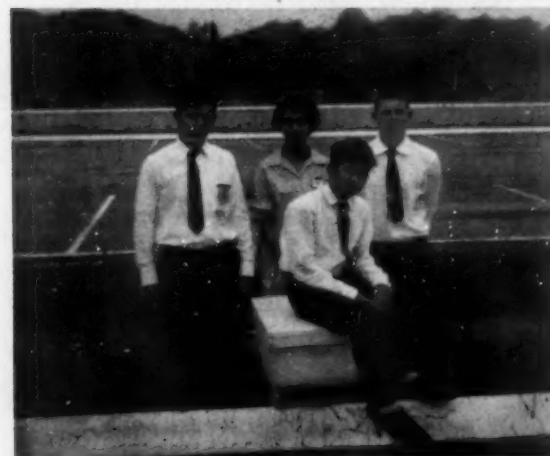
Another phase of the 4-H Program that has created considerable interest is the 4-H Beekeeping Demonstrations that are held annually. In these a



Jimmy Long, Yadkinsville, North Carolina, presenting his district winning demonstration, "The Proper Way to Hive a Package of Bees."



Bobby McLawhorn, Craven County winner, first State 4-H Demonstration in Beekeeping, 1954.



Billy Sheppard, a first place winner (standing at left); and Patricia Ann Cox, second place winner; with Henry Tinsley and Martin Mayo, (sitting).



John Van Horn, Murphy, N.C., giving demonstration at 4-H Camp. John is twelve and has been in club work with a beekeeping project for over two years.

club member chooses some topic, such as the proper assembly of a hive, how to install a package of bees, etc. and in competition, proceeds to show how it is done. In carrying out these demonstrations North Carolina is divided into six extension districts. Each district is comprised of 15 to 18 counties and is permitted to enter one contestant. Occasionally, county competitions are necessary to decide who shall engage in district competition, but usually there is only one contestant per county and there are fewer than a half dozen contestants per district. The district winners then go to Raleigh where the six of them compete for the state prize during 4-H Club Week.

Beekeeping is only one of 19 sub-

jects in which demonstrations are given, most of these being sponsored by state or national organizations. The three major beekeeping supply manufacturers supported our beekeeping demonstrations this year. Each district winner was given \$10 to help pay his or her way to 4-H Club Week and the state winner was presented with a check for \$15.

The National Picture

Beekeepers are probably the greatest bunch of individualists in American agriculture. Each prefers to run his own show and resents outside interference. Can it be that the beekeeper, in his insularity, is failing to provide for posterity by neglecting the interest of apprentice beekeepers? This is only one of many ques-

tions that we may ask ourselves. The facts, as here presented, show that the overall record is not good. While some look to Uncle Sam for support of one sort and another, there are others who are saddened by such overtures. There are some things that we cannot do for ourselves—there are other things that no one can do for us. Does the future of beekeeping rest with the government or with the individual beekeeper? Who is to interest the local 4-H'er in beekeeping? Who will help him through the first uncertainties of colony manipulations, tell him the meaning of what he sees, and encourage his progress? What and who will nourish our future beekeepers? Where lies the answer?

North Carolina

PREVENTION OF STING REACTIONS

(From page 236)

In all, fatal allergic reaction would not follow bee stings, unless inflicted in large numbers. This is surely a highly gratifying result. Some people are unfortunately unable to tolerate the larger doses necessary to give complete protection.

How frequently should the treatments be repeated? Or in other words, how long does the protection last? No certain answer can be given to this question. In some cases one complete treatment is all that is necessary. In others the treatments must be repeated, or better, suitable injections given every month. In those cases, where following the treatments, the individual is frequently exposed to bee stings, the immunity will most likely be maintained.

Does protection against the sting of the honey bee result in protection against the sting of the bumblebee, wasp or hornet? In most cases yes, in some apparently not.

Important

1. When stung, be very careful in removing the stinger from the skin. Brush off rather than pull out. This should be done immediately, as the venom sac continues to contract forcing the contents into the tissues. When carelessly removed, pressure on the sac will cause more venom to enter the tissues.

2. People who suffer from allergic reaction should take the desensitizing treatment. Until that is done, some suitable drug, such as adrenaline, should always be at hand, and taken immediately.

3. Avoid stinging insects as much as possible.

4. When stung, remove stinger immediately, take adrenaline, then call a doctor without delay.

Note: Treatment for desensitizing may be obtained by your physician from Hollister-Stier Laboratories, 2031 N. Sixty-Third St., P.O.B. 4520, Philadelphia 31, Penn., U.S.A.

New Chemical To Repel Bees

Oklahoma experiment stations are working on a chemical to repel honey bees. The chemical repels the bees until danger of poison from other sprays has worn off. The chemical is 2-hydroxyethyl-tert-octyl sulfide. When mixed with the insecticides it gives good results. Experiments are still going on.

Kentucky Bee Line

New Recipe Book On Honey

Maria L. Pinto, already well known for her culinary publications, has just recently authored a 175 page cloth bound book entitled "Eat Honey and Live Longer." She gives credit to the American Honey Institute, The Australian Honey Institute, besides several of our state schools and to private individuals. Her book differs from the ordinary recipe book in that she stresses the food value and therapeutic value of honey and other products of the beehive.

Too bad that in her introductory chapters her unfamiliarity with bees should lead her to state that royal jelly is produced by the glands of the queen bees, that section comb is taken from the beehive, cut into sections and placed in small wooden

frames. Also that creamed honey is whipped crystallized honey.

In spite of these misstatements, the recipes seem worth-while and many are individually developed.

The book is published by the Thwayne Publishers Inc. of 31 Union Square, New York 3, at a price of \$3.50. The American Bee Journal has copies at the above price for the convenience of its subscribers.

Rothamsted Publications

From Rothamsted Experiment Station in Harpenden, Hertfordshire, England comes reprints of articles appearing in various publications on scientific experiments at that station. We list the following:

- J. Simpson—
Treatments to Induce Swarming
Swarming Incidence in England
- C. G. Butler—
Supersedure in Honey Bee Colonies
Social Behavior in Honey Bees
- L. Bailey—
Observations on Streptococcus Pluton
- J. B. Free—
Ovarion Development in Bumblebee Workers.
- Free & Butler—
Size of Apertures through which
Honey Bees Will Feed Each Other

Shelf Talker Placard

Available through American Honey Institute at Madison Wisc. are 6x6 yellow placards featuring Honey and Hot Biscuits, accompanied by cut of straw skep and biscuits.



"Say, honey, what makes you sell so sweet?"



...glamour in glass!"



Even the bees are buzzin' about how to make hay with honey in H-A Pail, Comb, and Queenline Jars. Sparkling crystal-clear *Queenliners* fill quickly, pour easily, and sweet-talk to your customers wherever they're displayed. H-A also offers a complete line of beautiful flint containers for your pail and comb sales. For details, get in touch with your nearby H-A office.

HAZEL-ATLAS GLASS

division of **CONTINENTAL © CAN COMPANY**

WHEELING, WEST VIRGINIA

UNDER



CURRENT

Truthfully this page has not done well. It seemed like a good plan to let off steam concerning some basic questions. Maybe the questions have not been basic. Maybe you can dig up one that will bring a flood of answers so it might last two months on the same subject. Get your answers to this question (see below) in here anytime. For published answers subscriptions will be extended one month per square inch. Let's go.

SUBJECT FOR THIS DISCUSSION

How Can We Increase the Demand for Honey Outside the "Pancake" Months?

(Suggested by Thomas Doonan, Des Moines, Iowa)

From Cecil B. Hoy
Armstrong, B.C.

There is a vital need to increase both production and sale. The United States average per colony production of 43.4 pounds is too low. Even to double that would not be too substantial or sensational. Estimating the population at 160,000,000 and 1957 production at 235,000,000 pounds of honey that works out to only a little over 1.4 pounds per person. Production, and sales, are not much more than scratching the surface at present.

There should be more small producers whose crops are from one to twenty five tons who become "producer packers" and who keep their retail outlets supplied twelve months in the year, especially in the small centers of population. This is the key that unlocks the door to steadily increasing sales at a profitable price so far as small beekeepers are concerned.

Each outlet should be supplied with five packs; the one and two pound liquid containers of glass; the one and

two pound creamed honey pack of paper and the four or five pound creamed honey pack in metal; all attractively labeled. An excellent way to introduce creamed honey and stimulate sales is to furnish free to each store the three ounce Dixie cups full of creamed honey for their trade. There is a vast potential market for creamed honey, especially in the United States where sales of creamed honey only run about 20 percent of the crop.

From Harry J. Rodenberg, Sr.
Wolf Point, Montana

To increase the demand for honey simply take five pounds of good table honey and three squares of butter or butter substitute. Have the honey and butter at room temperature and put the mixture in the bowl of your Mixmaster and mix long and thoroughly. Keep in a cool place. It is delicious, easy to make and good to eat.

From Joe Robbins
Signal Mountain, Tenn.

Advertising to increase the consumption of honey should certainly be placed in magazines other than the bee journals. Wherever possible honey advertising should employ colorful pictures and displays.

Also many children are interested in honey bees and if they were invited to local bee yards and told about the

magificent role the bee plays for mother nature, they probably would enjoy eating honey more and they would soon begin to ask their mothers to buy more of it. Along the same line, the giving of free samples of honey to people who have seldom tasted it would prove invaluable in promoting honey sales. Establishing pleasing relations with local people is very helpful.

From Gil Smith
Bosler, Wyoming

There are many ways we can increase the demand for honey. Here are a few:

Displays should be made attractive by using caged live bees everywhere possible. Colorful displays at eye level are a big help. Displays too low or too high are not as noticeable. Each beekeeper should have an attractive display of his stock and product, and be active in county and state fairs.

It helps to have displays of live bees in schools. Children of school age eat lots of honey.

Keep the grocers' shelves neat, clean, and well stocked with good honey in all forms. Our biggest responsibility is to have a good product, properly cared for, neatly wrapped, and displayed attractively.

For the July Undercurrent, try this:

What Do You Consider the Most Important Advance in Beekeeping in the Last Twenty Five Years?

How To Do It



Address "How To Do It," American Bee Journal, Hamilton, Illinois.

The number one choice will receive a three year subscription extension; numbers 2, 3, and 4 will receive a full year each; numbers 5, 6, and 7 a six month extension each. Balance two months each.

Sometimes there are more items than can be used in one issue (as for this month). Those left over will be considered the following month.

Number One

Using the Old Queen in Spring Requeening for Two Queen Units

Colonies to be requeened by this plan must be strong. About fruit bloom I get queens from a breeder. I find the old queen in each colony and leave her in the bottom brood chamber with most of the unsealed brood and with additional room on top. I place the inner cover at the top, with hole closed. A hive body with the sealed brood and bees is set on top of the inner cover. Now introduce the new queen to this top unit with an upper entrance. Most of the old bees will go back below, leaving the young bees and they will quickly accept the new queen. As soon as she is laying well remove the inner cover and replace it with a double screen so both units will benefit from each other's heat. I let both queens go along separately during May, giving them stimulative feed, the bottom one with an entrance feeder; the top one with a friction top can in an empty super. When clover starts to bloom I remove the separating screen and add supers as needed. Usually the new queen in the top takes over and you get a roaring colony. Both units must be strong enough to build up rapidly and they should have at least four or five combs of brood each or the use of the two queens will be worthless. If the colony is not strong enough a two pound package can be given to the top unit to produce the results.

R. E. Golden
Gettysburg, Pa.

Number Two

Removing Granulated Honey from Combs

I have seen many methods advocated for the removal of granulated honey from combs and I admit that removal in the hive by the bees is best if the bees will do it. Aside from this way, however, the only way I have found acceptable is to uncap the combs and submerge them in water for three or four days. About once a day lift each comb and shake the water from the cells. At the end, one has a lot of bee feed in the form of syrup. This can't be done outside, of course, and if one has disease, sulfa should be added to the water. I don't like to do this as it is messy but it will remove the honey. I can usually find a few colonies low on food to give these combs to but the man with only a few colonies sometimes needs to open the brood nest in some other way and this way will do it.

Stanley Neel
Mangum, Okla.

Number Three

To Repair Smokers

To repair holes in the fire-box section of my smokers, I use shredded or powdered asbestos and water glass (sodium or potassium silicate). Add the water glass to the asbestos until a doughy mixture results. Press into the hole from the interior of the smoker and smooth down on both sides of the hole to form a "rivet." The smoker may be used at once. To repair the bellows I used rubber tire patches following the package directions.

John D. Millard
Arlington, Mass.

Number Four

Ammonium Nitrate for Introduction

I bought a queen to requeen a colony that seemed to be building up too slowly but everything changed before she arrived. The colony was larger and the bees busy. An examination of the brood made me feel

I would lose more by requeening than by keeping the queen already on the job. What to do with the new queen?

Next day a large swarm came out of another hive so I put an open shipping package under the tail of the swarm and gave them the new queen, still in her cage. The next day I used another shipping cage to take another pound of bees from another swarm. That same afternoon a neighbor called me to come and get a swarm, so I secured those bees in another shipping cage. Now, how could I unite the three packages of strangers into one congenial unit?

I removed the new queen in her cage and suspended her in a hive and set the three packages in also, side by side, covered with a small canvas tucked about them. I loaded my smoker with a teaspoonful of "laughing gas" pellets (ammonium nitrate) and gave the bees a good puff through the cages under the canvas. Half a minute later I poured all those bees into the hive and covered it. The three shipping cages, with a few clinging bees I stood on end with the openings next to the entrance. In twenty minutes all the bees were inside. They had found the queen and there was no fighting. They are now at work in a well regulated colony.

W. R. Van Buskirk
Madison, Georgia

Number Five

Requeening a Rough Colony

Requeening a waspish colony is usually a difficult and often a painful task and the mother of the she-devils is hard to find. I accomplish this requeening by what I call the alarm clock method. I set the clock to get me up just before daybreak and I steal out to the colony and gently close the entrance, having previously made sure that there are no places in the hive that will leak bees. Then I move the hive into a new location and set a hive with drawn combs and my new queen on the old stand. When I have the hive with the new queen ready, I pull the entrance of

the old hive open and run. Of course this should be done in warm weather when the bees fly freely.

In a day or two the old bees, the ones with the most fire in their posterior ends, will have gone to the hive on the old location. Then finding the queen in the original hive is a comparatively easy matter. After she has been killed, the bees on the old stand are smoked, the cover removed from the hive and the old hive is set on top of the new one and the job is done.

Cecil F. Siders
Cincinnati, Ohio

Number Six

Frame Cleaning

A container of sufficient size, placed on a burner and partly filled with water steaming hot, makes frame cleaning simple and quick. After the main part of the wax is cut out, immerse the frame partially, holding on to the frame. The wax dissolves and the frame will dry almost wax free and clean, ready for a new sheet of foundation.

Keith E. Hudson
Fairbury, Neb.

Number Seven

Keep Your Combs Movable

One job many neglect is the cleaning of brood combs each year. Set aside definite time for this. We advise the fruit bloom period when the bees are good natured and little inclined to rob. Use the hive tool and clean the edge on each side of every end bar. A hive scraper will make quick work of cleaning the inside of the hive bodies. Cleaning the brood frames is very important when ten frames are used in each body. We suggest ten frames for comb honey production and only nine frames for extracted honey production. Keep the bottoms and inside covers clean also.

Julius Lysne
Stockholm, Wis.

Your Hive Tool

Along with the beekeeper's regular equipment I have found the hive tool one of the most valuable implements for anyone to own. In addition to opening the hive, scraping, and so on, there are other uses too. The hive tool is a good paint scraper; it will raise hard-to-open windows, and serve other purposes.

B. M. Winter
Bloomington, Ind.

Foolproof Requeening

Kill the old queen in the colony to be requeened. Take the queen you want to introduce and put her on her own, without any other bees, in a match box. Put the match box in your pocket for two hours. Then slightly spit on the queen and let her run in the colony to be requeened.

E. Goward
Mansfield, England

Clean Out the Combs

Clean out the dead bees from any hives in which the colonies have died during winter. Then store the bodies of combs on queen excluders so the combs are ventilated, yet protected from mouse damage. If the dead bees are left between the combs the combs may mold and rot so the bees will have to tear them down and rebuild when they are put back into use.

David Bradford
Orlando, Florida

For Better Combs

I use a No. 2 bluc nail in the center of the underside of the top bar. The nail is bent into a hook with straight narrow pliers. The nail is to hold a short wire twisted around the three top wires of the frame to prevent the comb from sagging when it is heavy in hot weather. The comb is then well attached to the bottom bar with no buckling. The lower edge of the foundation is spaced two thirds of the width of a cell from the bottom bar. The foundation should be drawn above in the super with a few combs at the sides.

James Warmington
Yamhill, Oregon

Using Eight Frame Bodies

Adapt those unused eight frame bodies so they may be used in feeding through a ten-frame inner cover. Nail a strip of wood 1 1/4 inches wide by 1 3/8 inches long to each side of the body at the lower outside edge, flush with the bottom. The body will now fit over the ten-frame inner cover for feeding and keep rain and robber bees out.

Eight frame equipment is also handy for setting up nucs to store queens in reserve or to raise queens in. They are easy to handle when the nuc is to be moved to another yard where a queen is needed. In the fall the nuc may be wintered if it is heavy enough with stores; or it may be united by placing it on top of a colony with an older queen.

Ronald Wulff
Charles City, Iowa



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by Return Mail

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ITALIAN QUEENS

Highest quality, purely mated, good producers. Safe arrival and satisfaction guaranteed. State Health Certificate furnished.

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Extra queens—\$5c

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LIGHT 3 BANDED
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We ship only young queens, guaranteed mated and laying. Clipped and marked at no extra charge and shipped air mail postpaid.

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25-49
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\$1.00 each
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Columbia, S. C.



All Around The Bee Yard

by G. H. CALE

Here I am, back again, after sharing space with some nice new recipes in April, and some astute answers to questions in May. This magazine is too ambitious. It has more departments than an old colonial home has rooms so instead of devoting space to each one each month it is necessary to move each department around, omit it for an issue, or alternate to keep every reader's interest. Even I find it fun to read ABJ now. Do you?

...

We didn't even get into the bee yard in the first paragraph. Sorry. Let's step in now and start visiting. After bragging about how ground moisture had started to get up to the top once more, it turned dry again, almost as dry in places as a snake's belly on a desert floor. Result, early bloom was grand and fragrant but it had a quick run and faded out. Now, dust rises from the fields from wind or plow. Wire fences let the farmer turn the soil right to the road's edge. The mower lets the highway crews cut down everything but some green grass. And so our miscellaneous nectar sources rapidly disappear.

...

Crazy people. We make a big noise about how bees must pollinate farm crops. Then we push the frontiers of beekeeping forever back so few farmers can have free bees on their place because the colonies would starve. At least all this is true here in the flat Middle West. In the hills and valleys and along the waters beekeeping still means something. Even our outfit here at Dandant's is becoming progressively squeezed and reduced. Where farmers must hold hill farms with pastures bees still have a break. How-

ever such spots are hard to find and those that are found allow only a few bees in a place. Oh well, maybe there is room on the dark side of the moon.

...

Remember when we paid about half what we do now for gasoline? And half or less of what we do now for a truck for the bees? And when we hired a helper for 25c an hour? And when we could get new supplies and bees to start a colony for about \$12? Some of you kids may think this old codger is spinning a yarn but our way-back records reveal these figures.

Try to duplicate any of them now. Multiply any of them by about 2½ and you have what the same cost is today. Then apply today's figures to today's crops and 12-14 cent honey brings in no more profit return than 5 cent honey used to do. Add this to the honey plant picture and I don't like it, do you?

...

Some of the problem spells itself out plainly enough. Find a better spot but don't go too long a distance for it. Find it close by. Remember locations will change and change again. More than one big outfit has left one locality and moved a long distance into another only to have to do it all over again. It takes a lot of cash to recover the costs of moving and re-establishing a commercial outfit.

Also don't have big yards. A few small yards, no further than a half mile apart, may do better than one large yard in the same area. Plan work based on the fewest operations possible; combine jobs and have enough help to give every possible needed attention in one trip. Maybe you should have no more bees than

you can handle most of the time by yourself or with the help of others in the family.

Unless you just get a thrill out of poking into the colonies, let them alone all you can. It is amazing how, many of the things we used to think had to be done did not have to be done at all. Seems like bees are used to taking care of themselves pretty well. As for the real essentials we can work our equipment over at odd or off seasons or we can replace colonies more generously so the equipment finds its way into the shop often enough to suit our equipment needs. We can now control disease with drugs and we can queen as a part of replacement or with some automatic two queen plan.

...

Now where do we stand? Just where has this mumbo jumbo brought us? Seems like what we are trying to say is that beekeeping is still a pretty good proposition when we cut costs to beat the band and do a real job of soil and source surveying close to our center of operation.

...

I have listened to a lot of bragging about the elimination of spring feeding when colonies are wintered heavy with stores. However, either I am a poor hand with bees or there is some secret I don't know about because in the two or three weeks just before flow time the most of my colonies must be fed. The most lasting feed for me is honey (capping melter honey in feeder pails with sulfa) plus four or five pounds of dry sugar. All colonies will have drug sugar with cluster shells whether or not they need feed otherwise. Cluster space and sugar to nibble on cuts swarming down to a minimum.

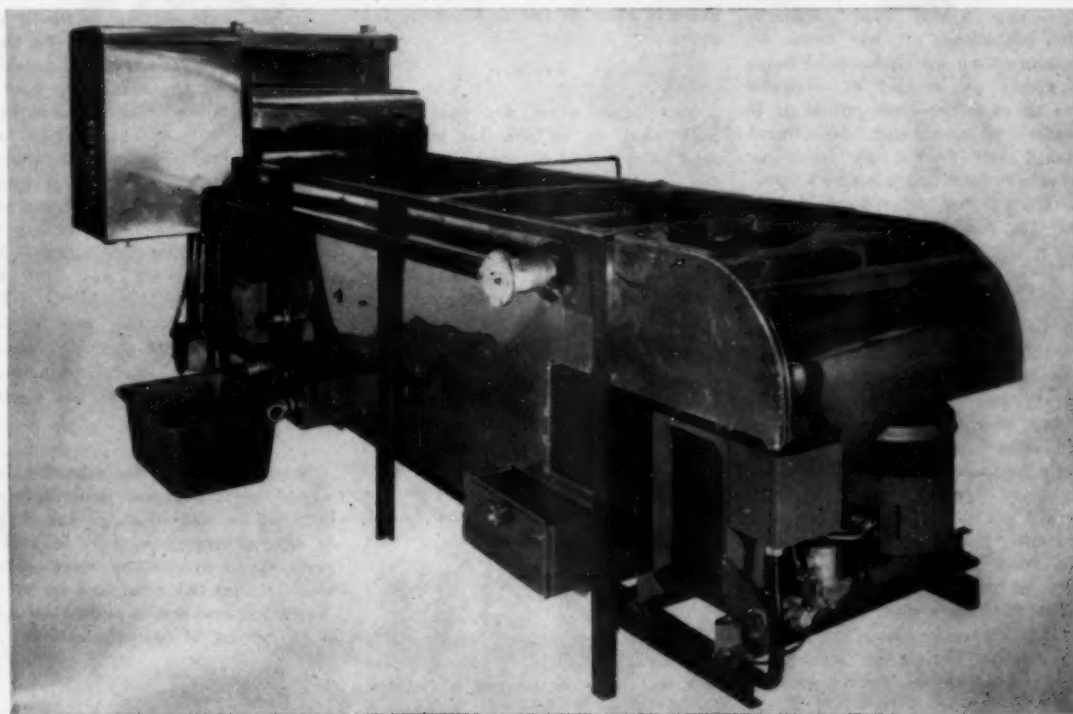


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Sioux City, Iowa

British Publicity Policy

Apparently the British Department of Agriculture has a more flexible policy of its department heads and experimenters than does our own department here in the U.S.A. Articles in the bee press of England appear often under the authorship of C. G. Butler, and his colleagues.

Thus valuable information either in the process of being collected or completed becomes known to the beekeepers in general even though official publication may be delayed or perhaps never be completed.

We are quite sure that beekeepers as well as others would welcome a similar policy in this country which would allow a better insight into what our Government bee department and its field stations are working on while the work is in process. In fact not only would the material be welcome, but it would tend to strengthen the department since it would naturally enhance the value to beekeepers in general.

Australian Disease Bulletin

Compiled of a series of articles appearing in the "Australian Beekeeper" comes a 48 page bulletin by W. H. Augerston and published by Pender Bros. Ltd., Elgin Street, Maitland, New South Wales, Australia. The title of the book is "The Diseases of Bees, Symptoms, Treatment and Control." Well illustrated, the book gives description of 13 diseases of adult honey bees and their brood.

An appendix quotes the regulations in importing queen bees into Australia. Copies of the book may be obtained by remitting \$1.00 or 6/9 to the publishers as above, who are probably the largest bee supply manufacturers "down under" as well as publishers of the magazine from which the material for the bulletin was taken.

British Columbia Centennial

Retired inspector and "Old Timer," W. H. Turnbull has almost completed his book, "One Hundred Years of Beekeeping in B. C." Advance orders for the book are being placed with Mr. John Corner, Provincial Apiarist at Vernon B.C. So that its success may be assured we commend helping with the project. The cost should not exceed \$2.00.

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2 lb. pkg. w/q—\$3.25; 3 lb. pkg. w/q—\$4.25; Young laying queens—70c each — by airmail 75c.

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BEES— 2-lbs. \$4.25 3-lbs. \$5.33

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Carniolan and Caucasian QUEENS

Best assurance for good honey crop is young laying Carniolan or Caucasian queens. They are the answer for gentleness and production. Booking orders for early March.

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	1 - 24	25 or more
2 lbs. with queen	\$3.60	\$3.40
3 lbs. with queen	4.25	4.00
Queens each	1.00	.90

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INSURE your honey crop with **DEPENDABLE BERRY BEES**. After sixty-three years of breeding and selection our strain of Italian bees is unsurpassed by any stock, Hybrid or otherwise, for honey production, disease and Nosema resistance. "OLD RE-

LIABLE" bees assure you that you have the best to be found. We maintain several branches in the Northwest States to test our strain for both climate and honey production. When a better stock is produced "Old Reliable" will be its name.

PRICES:

	Queens	2 lb. w/q.	3 lb. w/q.	4 lb. w/q.	5 lb. w/q.
1 - 24	\$.95	\$3.25	\$4.00	\$4.75	\$5.50
25 up	.90	3.00	3.75	4.50	5.25

Tested queens \$1.80 ea. For queenless or "booster" pkgs deduct 90c from price of package.

For prices on queenless packages deduct \$1.00 from price of queen; all prices F.O.B. Montgomery, Ala.

All our queens are selected; we have only one grade. Wings of queens are clipped free, on request. 90% of the bees in our packages are under ten days old. All orders will be filled on the dot unless weather makes it impossible. We have no disease. Our apiaries

were the first in the state to be inspected and were found to be absolutely clean. Directions for handling and a Certificate of Health come with each shipment. Deposit of \$1.00 per package required for booking; remainder of remittance in full, ten days before shipping.

All Prices F.O.B. Montgomery, Ala.

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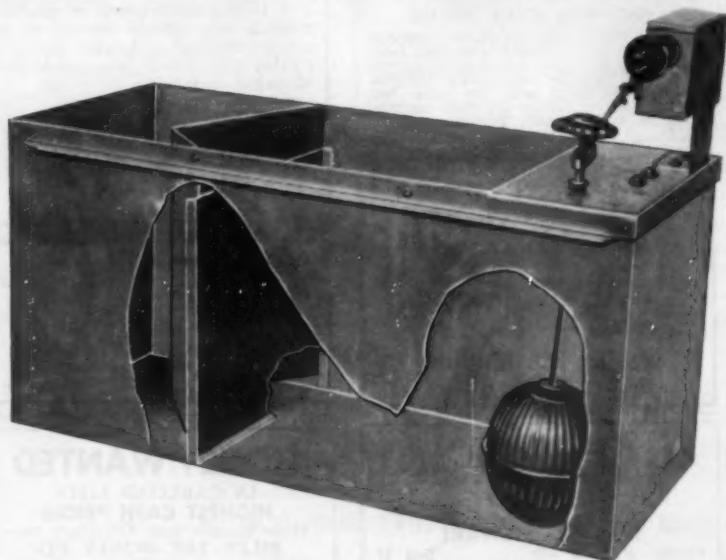
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Our big new sump holds about 8 gallons on the entrance side and has a solid baffle so that the debris can be held there and skimmed off. The pump side holds about 12 gallons and they are stocked with or without a water jacket and in stainless and galvanized steel. Write for free catalog.

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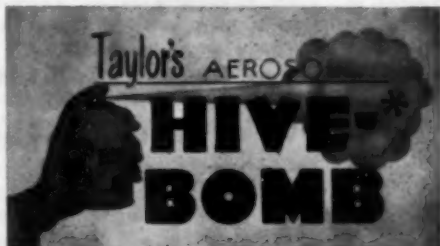
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*For quick service and quality send us your order.
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Wilbanks Package Bees and Queens "Italians"



Now is the time to place your order for package bees and queens. All indications are that the demand will be heavy and we urge you to place your order early.

We have spent years developing and improving our present strain of bees. Breeding stock is tested and proven in our own honey producing apiaries. You will find our bees pleasing in appearance, easy to handle and tops in production.

Shipping season started about April 1st. Shipments by express, parcel post or your truck. We guarantee live delivery, a health certificate with each shipment and service on which you can depend.

— PRICES —

	1-9	10-49	50-up
2 lb. pkg. with young laying queen	\$4.25	\$4.00	\$3.75
3 lb. pkg. with young laying queen	5.35	5.10	4.85
4 lb. pkg. with young laying queen	6.45	6.10	5.85
Extra Queens	1.40	1.30	1.20

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The Wilbanks Apiaries

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MEETINGS



HERE and THERE

Midwestern, Lees Summit, Missouri, June 8

The Midwestern Association will meet at the Apple House, Unity Farm, Lees Summit, Missouri at 2:30 PM Sunday, June 8. On the agenda are talks on hive manipulation and swarm recovery. Also a motion picture "Beekeeping in Missouri." Refreshments will be served by the Ladies Auxiliary. Everyone welcome.
Carroll L. Barrett
Secretary

Connecticut Summer Meeting Windsor Locks, June 28

The Connecticut Assn. summer meeting will be held June 28, at the home of Mr. Emil Pagan, 138 South Center Street, Windsor Locks. The meeting time is ten A. M. and the speaker for the day will be Roger Morse, Assistant Prof. of Apiculture and Extension Apiarist of Cornell Univ. Ithaca N. Y. The beekeeping lesson for June, sponsored by the Conn. Beekeepers Assn. is to be included in the day's program.

Mr. Pagan has an interesting extracting assembly which was used for last year's honey crop. There will be several hives available for manipulation. For those who wish to bring their children they are welcome as there is a small pond for them to fish in. Beekeepers and others interested in bees are invited to attend for the day. New friends and much information is in prospect for those who come.

The officers of the Connecticut Beekeepers Assn., Inc. elected at the April, 1958, meeting are: President, Mr. Edmund H. Hamann, Riverside, Conn.; Secretary, Mrs. Harry Powell, 1242 East Street, New Britain, Conn.; Treasurer, Mr. Edwin La-Brake, 7 Main Street, Woodbridge, Conn.

It is with regret to report that Roy Stadel, Southington, Conn. has been ill since Jan., 1958. He is now retired from bee inspection for the state of Conn. after serving for 15 years in this capacity. Mr. Stadel has

a wide circle of friends here in Conn. and surrounding states. Those wishing to send cards or letters to him, the address is 89 Carter Lane, Southington, Conn.

Philemon J. Hewitt, Jr.
Publicity

Annual Field Meet Eastern Missouri Association, Gray Summit, June 8

The Eastern Missouri Association has planned the 1958 Field Meet for Sunday June 8th at the Missouri Arboretum's Trail House located at Gray Summit, Mo.—Rain or shine. This is approximately 35 miles west of St. Louis and can be reached by Highway 100 or 50-66. Bee meeting markers will guide you to the Trail House from the entrance at the Green House, across the highway of the Weight Station.

Since we have been given permission to use these facilities, although some of the Garden is closed to the general public and is barricaded, you may remove the barricades to go through but *please be sure to replace them after you have passed through.* Pack your picnic basket, gather together the family and friends and meet your fellow beekeepers. *Bring your own drinking water as none is available at the Trail House.*

PROGRAM: Based on daylight saving time.

10:00 A.M.—Registration. A registration fee of \$1.00 per person will be collected from all over 16 years of age. This money is used to pay for refreshments and attendance prizes. All who are registered are eligible for attendance prizes.

No definite program is planned until noon in order that you may hike the trails or just sit around and enjoy the fellowship of your old friends and new acquaintances.

12:00—Noon. Time for that luscious lunch you had so much fun preparing and for the cold soda and ice cream provided by the Association.

1:00 P.M.—Installation of a package of bees donated by Stover Apiaries, Mayhew, Miss., into a new Root hive. This hive and bees will be the First Attendance Prize.

1:30 P.M.—Reserved for Speakers.
2:30 P.M.—The 1958 Field Meet Honey Queen to be chosen from among the members' wives and daughters. Last year's charming Honey Queen, Miss Evelyn Simon, will relinquish the scepter to the new Queen.

We will then have the drawing for attendance prizes. There will be many prizes which can be enjoyed by a beekeeper.

For the Men:—Horseshoe pitching contest.

We hope that you will come out to enjoy the beauties of nature, and learn new ideas in beekeeping.
W. Wallace Daugherty
Secretary

Berks and Lebanon Counties (Penn.) Bethel, June 23rd

On June 23rd, at 6 P.M., the Berks and Lebanon County Associations will hold their summer meeting at Paul S. Ziegler's Apiary. Queen rearing will be discussed and demonstrated, including the building of cells and the transferring of larvae. Ziegler's apiary is located on Old Route 22 a half mile east of Bethel. Bethel is at the junction of Routes 22 and 501. All beekeepers and their friends are invited. Refreshments will be served.
Darlene Becker
Secretary

S.E. Minnesota Beekeepers Summer Picnic, Cannon Falls, July 13th

The summer picnic of the S. E. Minnesota Association will be held five miles south of Cannon Falls, Minn. at the Robert Banker home and honey market. Potluck dinner will be served at noon, Sunday, July 13th, with free coffee and ice cream. Pack a picnic lunch and be at this meeting which will be attended by commercial beekeepers from out of

state as well as amateurs with one or more colonies. A good program has been prepared and all beekeepers are invited.

F. Q. Bunch

Sec'y S.E. Minn. Beekeepers Association

Norfolk County (Mass.) Walpole, June 2

The next meeting of the Norfolk County Association will be held June 2, at the Norfolk County Agricultural School, Walpole, at 6:30 p.m. We are all looking forward to the outdoor summer meetings. Massachusetts has had a long, cold, wet spring, but it is encouraging to hear from various sources that the bees "weathered the winter" well and we hope the coming season brings the best to us all.
Edith L. Colpitta
Sec.

Iowa Association Summer Meeting Council Bluffs, July 12th

The annual summer meeting of the Iowa Association, cooperating with the Nebraska State Beekeepers Association, will be held on July 12 at Council Bluffs, Iowa, with the A. I. Root Company as host. A program of national speakers is being developed. The forenoon will be devoted to registration, a tour of the plant and games. The pot-luck lunch will be at Kiwanis Park. The program will be given at the park in the afternoon. Every beekeeper is invited.
F. B. Paddock
Extension Apiarist

Colorado Summer Meeting Greeley, June 30th

The annual Summer meeting of the Colorado Association will be in Greeley at Island Grove Park on June 30, District #1 (Northern and Northwestern Colorado) will be host. A picnic lunch will be served at noon. A short program is planned. Some new equipment will be displayed. Current problems discussed, and there will be games for all who wish to play.

Send a card to the secretary saying you will be there.

Harold E. Rice

Secretary, Greeley

Central Jersey Association, Old Bridge, June 14th

The first outdoor meeting of the season for Central Jersey Beekeepers Association is to be held at *Henry Vogel's Farm*, Old Bridge, N. J. at 2:00 P. M. Saturday, June 14, 1958 or if it rains - June 28, 1958. Follow

bee meeting signs at intersection of State Highways #9 and #520 to Vogel's Farm.

Events important to beekeepers this summer are to be discussed, an inspection of bees and a question and answer period are planned.

Rev. Andrew A. Burkhardt has planned an undenominational sermon at his church in *Homdel, N. J.*, which will be of interest to beekeepers, on Sunday June 29, 1958, 10:45 A. M.

A grove is available to beekeepers for picnics for those who wish to stay to visit North Jersey Beekeepers Meeting in the afternoon.

Forrest Campbell
Woodbridge

Michigan Summer Meeting Place—Ionia Free Fair Grounds Date—Friday, July 18, 1958

We expect the usual good turnout to the annual picnic again this year. There will be a good program but not too crowded to allow time for visiting. Bring something for the pot-luck dinner and enough so there will be a snack left for supper. Coffee and ice cream will be provided. If you are interested in beekeeping, you are welcome.

Michigan Beekeepers Association

Middlesex County (Mass.) Groton

The June meeting of the Middlesex County Association will be held at the home of Mr. and Mrs. S. W. Dickson, Old Ayer Road, Groton, Mass. At that time the club members and guests will inspect and note the development of the club hive that was started at the last indoor meeting in April at the Waltham Field Station.

At the regular spring meeting the following officers of the club were elected: John H. Furber, Pres., Asa Olsen, V. Pres., Douglass G. Pamplin, Rec. Sec., Lolita Pamplin, Cor. Sec., Henry G. Neunzer, Delegate. Mrs. Lolita Pamplin
Cor. Sec.

In Memoriam

Eugene S. Miller

Mr. Miller was well known throughout the country as one of the industry's outstanding beekeepers and author of many articles on practical beekeeping. He was a member of the Valparaiso, Indiana, City Council. He was born in 1861, died at 96, after a two year illness. He graduated from Indiana Normal School (now Val-

paraiso University); M.A. at Indiana University. He was principal of schools in Carlisle, Porter and Chester-ton. Later taught physics and chemistry in Valparaiso High School. He retired to engage in beekeeping in 1912. He was city councilman and president of the plan commission. His son, Robert L. Miller, heads the Robert Miller Laboratory in Valparaiso.

Paul Asher

Paul Asher, 54, well-known Hastings, Minnesota, beekeeper and inspector passed away suddenly May 19 from a heart attack.

Paul was born in Durand, Wisconsin. He was interested in bees and beekeeping at an early age and took an active part in the control of bee diseases of this area and has been a state bee inspector in Minnesota for a number of years. He held the office of vice president of the South-Eastern Minnesota Beekeepers Association at the time of his death. His wife, (Elizabeth), two sons, and five daughters are left to mourn the loss of a devoted father and husband.

F. Q. Bunch

Sec. S.E. Minn.

Association

Earl Rulison

One of the larger beekeepers of New York, Earl Rulison, passed away recently in Avon Park, Fla., while on a winter visit there. His whole life was lived in Amsterdam, N.Y. He was a member both of the State Beekeepers' Association and that of Schenectady County. Mr. Rulison was 77. His son, John, who has been associated with him, will continue the bees.

Clarence L. Howk

F. J. Renner, Secretary of the Morris County Association in New Jersey, announces the death of Clarence L. Howk last fall, formerly officer of several of the beekeeping organizations in the state. A memorial resolution was given to his family and friends by Mr. Renner's group, an act that could well be adopted by others under similar circumstances.

O. S. Bare

O. S. Bare, former associate professor of entomology at the University of Nebraska is dead at age of 67. Mr. Bare has through his 30 years at Nebraska, always been a friend of beekeepers and a decided help to the cause of beekeeping in that state.

JENSEN'S "Hi-Q" Queens

No so small, single investment, pays such good dividends in profit and pleasure in beekeeping, as good queens. High production, with uniformity is a major factor in our Queens.

Either Dadant Starline Hybrids or our own Magnolia State Italians will please you we honestly believe.

PRICES: Postpaid

Dadant Starline Hybrids			Magnolia State Italians		
1 - 24	25 - 99	100 - up	1 - 24	25 - 99	100 - up
\$1.30	\$1.15	\$1.00	\$1.00	\$.95	\$.90

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HASTINGS STRAIN and MIDNITES

Queens available until winter

10 percent books order — Balance two weeks prior to shipment

Prices from June 1st on

Number of queens	Regular	Midnites
1 - 24	\$1.10	\$1.30
25 - 99	1.00	1.20
100 up	.90	1.10

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Our bees stand test for honey gatherers, gentle, prolific, bred from hives making 300-lbs. honey or over - **LARGE YELLOW QUEENS.**

Full weight, **HEALTH** certificate with each shipment, queens all air-mailed.

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Select Queens—75c Tested Queens—\$1.50 — 1 or 1000

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The Scramble — — A Contest

Editor - Pat Diehnelt



MAY SCRAMBLE

J. W. "Jim" Newton

Wow! Talk about getting one's ego punctured! At the moment of writing this, not one contestant even ventured a guess as to who the mixed-up picture might be. Is that a nice letdown, to quit when the going gets a bit more difficult?

Jim Newton used to be "Professor Newton." He was born Sept. 11, 1891 and spent his early life on a Mississippi cotton farm. He graduated from high school in 1911. Then he graduated from Mississippi State and took a Master's Degree in Animal Husbandry in 1917. Four years of extension work followed and five years teaching agriculture and animal husbandry in an agricultural high school. All through these years there were bees in the family and in 1926 Jim went into commercial beekeeping and queen breeding.

April Winners — Clare D. Floyd

Number One

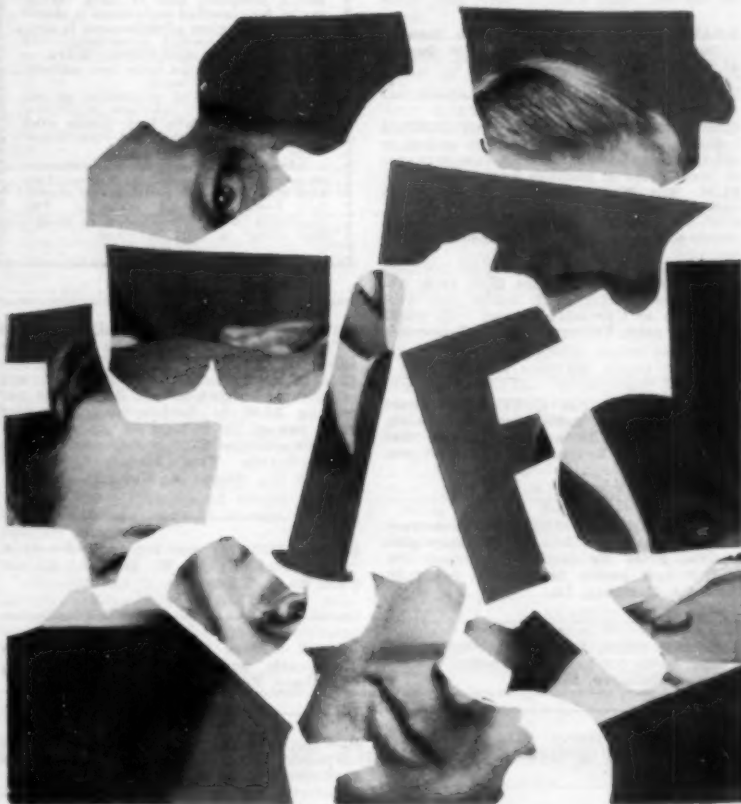
Curtis Olson, Zumbrota, Minn.

The scrambled picture for April was C. D. "Hot Biscuit" Floyd, State Apiarist of Minnesota. He came to Minnesota from Canada on April 1, 1945. He is also marketing committee chairman for the American Beekeeping Federation and advertising manager of the Minnesota Beekeeper, official organ of the Minnesota Beekeepers' Association. He writes a question and answer column in the magazine under the name of the "Old Drone." He is superintendent of the Bee and Honey Exhibit at the Minnesota State Fair. He developed a training school for bee inspectors that is tops anywhere. He also takes care of his own bees, maybe as a hobby in his spare time! He also has the best hot biscuit recipe to be found anywhere and I suggest you twist his arm and get it for your Recipe Page.

Number Two

Patricia L. Wilson, Glyndon, Minn.

This scramble is C. D. Floyd and he lives at Excelsior, Minn. He works in the State Department of Entomology as head of bee inspection for the state. His fun name is "Chief."



Scramble For This Month

Last month we really did have you in a corner with Jim Newton. Now do we drive you through the wall with the above scramble? This cutup should be considerably easier than Newton's. In fact it should be one of the quickest to be unscrambled which has yet appeared. Want a clue? Well, try this: he is one of our speakers most likely either to keep you squirming or laughing. Few beekeepers in the Midwest have not enjoyed his wit and his penetrating analysis. Who is he?

Write your answers to "Scramble, American Bee Journal, Hamilton, Ill." anytime this month and the winners will be given in the August issue. What fun title do you bestow on this gentleman? For the best answer a three year subscription and your choice of a book (book list will be sent); for the second winner, a two year subscription; third, a one year subscription; next four, four months each.

Number Three

Aylmer Jones, Malden, Mass.

This is Clare D. Floyd, St. Paul, Minn., State Apiarist and Chief Inspector; well known as former secretary of the Minnesota State Association and secretary of the first National Honey Show. In addition to being an expert on disease and bee management he is the author of many articles on pollination problems, cleanliness in honey preparation, and methods of marketing honey. He has served on national committees concerning the foregoing. I would call him the "Beemen's Friendly Watchdog."

Number Four

James Pecinovsky, Tampa, Kansas

This is Clare D. Floyd of Minnesota. In 1930 he was secretary of the Minnesota State Beekeepers' Association. In 1953 he

became State Apiarist. In March, 1950 ABJ, he wrote "Pollination Problems in Minnesota." In November 1953 he wrote "Sanitation in Honey Production." Then in January 1957 he wrote "Steps to Maintain Honey Quality." My fun title is: "The Clean Honey Speaker."

Number Five

Auguste Mousty, Neuville, Belgium

This is Clare D. Floyd, formerly secretary and now chairman of the Marketing Committee of the American Beekeeping Federation. He is also State Apiarist of Minnesota and is best known for his work in new methods of marketing, honey cleanliness and honey quality. He is a promoter of TV programs and writer of many articles and an analyst of buying psychology. Let's call him: "Chef de Vente."

—The Market Place—

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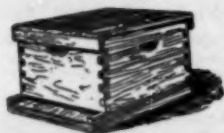
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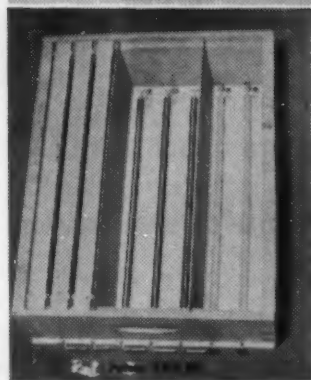


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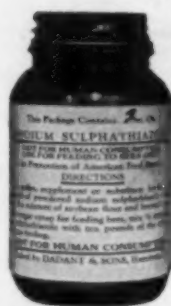
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—Crop and Market—

by M. G. Dadant

OLD HONEY ON HAND

The entire eastern half of the country seems to have disposed well of 1957 honey, with perhaps 10% of crop left in Florida, some good sized lots in Pennsylvania, perhaps 20% of the 1957 crop left in Michigan, and several good sized lots in Texas. Wisconsin has quite a lots of honey left, and all packers seem well supplied. Other points where producers still have honey are Montana, some in South Dakota and Wyoming. There is some old honey in California, with orange and other new honeys coming on the market.

Quebec, the maritime provinces and British Columbia seem well cleared of honey, with considerable amounts left unsold in Ontario and Manitoba, owing to the large crop in 1957.

Retail sales seem to be holding up well.

CONDITION OF BEES

In view of the cold winter and prolonged spring it is heartening to learn that in most cases condition of bees is above normal, with irregular spring and backward spring making for starvation cases where bees have not been carefully watched. Thus feeding in many cases has been a must. Otherwise bee condition has been above normal, except that in the queen and package producing areas both the cold and the bad weather (as in California) have made the row of the breeder and shipper unusually "rough." The season is universally late, so even the stimulative flows have not been a dependable item, though late in May, dandelion has come to the fore as even a surplus producer in some instances. Damp cool weather keeping growing colonies from the fields has tended to induce swarming in some instances.

HONEY PLANT CONDITIONS

There may be some question to the plentifulness of honey plants where the fall was dry, but there is little doubt but what plants there are have had fine growing conditions and are above normal, though late. In fact we would consider that plants as of May 22 are 135% of normal even considering their proportional shortness of numbers in some sections. Dutch

white clover seems more abundant than could have been considered possible as of Oct. 1. The plains states seem about to resume their role in honey production due to good sub-surface moisture, even with perhaps a little surface rains needed.

MOISTURE

As stated above moisture is one thing which most sections seem to have plenty of. As usual, some exceptions. A band of territory along our northern boundary and into Canada extending from northern Illinois and on through Wisconsin, northern Minnesota, N. Dakota, Manitoba and into Montana report more moisture needed to keep future plants growing; Nevada similarly. Arkansas and extending eastward feel "gloomy" on account of too much moisture, especially in those areas which depend on the early flows. All in all, moisture especially subsoil moisture is far improved over a year ago, and this applies especially to the dry lands of eastern California for sage and other dry land plants. A late season but a moist one with excellent prospects except for the areas listed above.

THE CROP SO FAR

So far, crops have been disappointing. Florida has perhaps half of her last year's crop of orange due to the damage done by succeeding late freezes, but what orange honey was harvested is reported as the finest, whitest ever. But beginnings of palmetto and gallberry in the Southeast seem favorable and lots of moving going on. Farther west, Alabama and Louisiana are having better than 1957 harvests where bad weather has not interfered. In Texas it has interfered with the early flows as it has in Arkansas. About the only other place where crop can be reported upon is in California, where both cold and unfavorable weather have interfered with orange collecting by the bees. As a result the orange flow does not promise as well as in 1957, but there is little of ultimate discouragement in California on account of the pos-

sibilities of sage and other desert plants. In fact one correspondent has already reported an average of 100 lbs. from sage.

Snow reserves in the intermountain territory seem propitious for supplying the needed amounts for summer irrigation. If the impending flows materialize, we must need as beekeepers to do a lot more than we did to help find a market for the coming crop. Our efforts were rather meager on the 1957 crop as compared to what they were a year or two previous.

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Chas. Handel
Savannah, Ill.

The Lion and the Honeycomb

R. P. Blackmur wrote a book of essays with this title, "The Lion and the Honeycomb." One wonders if a lion would eat a comb full of honey, even if he could find nothing else. Any bear, in his right mind, would certainly do so.

Samuel Freeman,
Ocean Park, Cal.

"The Gift of the Wise Bees"

Feodor Sologud, a Russian playwright, wrote a drama in three acts in 1908, called "The Gift of the Wise Bees." Beeswax plays an important part in it although there are no bees involved in the plot.

Samuel Freeman
California

The Dancing Bees

All beekeepers should know about Karl von Frish's amazing book, "The Dancing Bees," and his account of the life and senses of the honey bee. It tells about the outstanding experiments by the author to determine how bees communicate. It is published by Harcourt Brace and Company.

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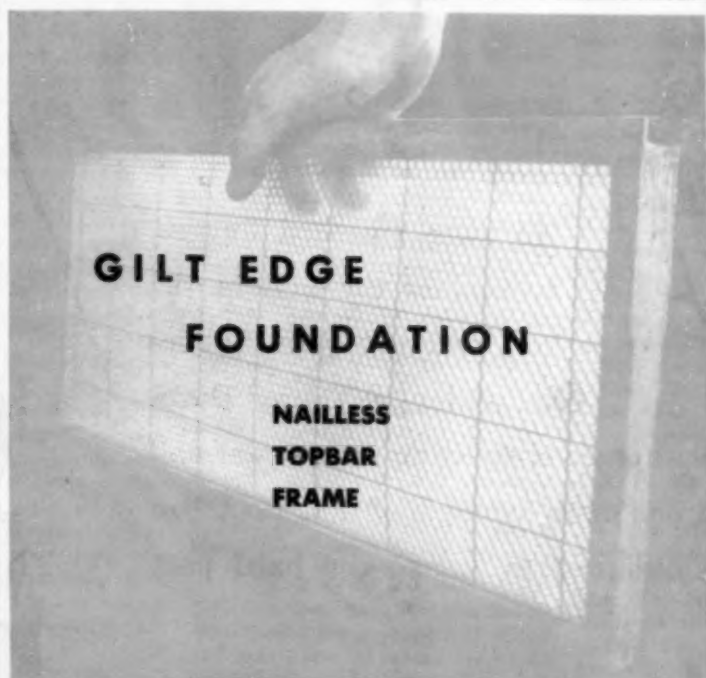
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